

ETHNOLOGY OF TONGAREVA

BY
TE RANGI HIROA
(P. H. BUCK)

BERNICE P. BISHOP MUSEUM
BULLETIN 92

HONOLULU, HAWAII
PUBLISHED BY THE MUSEUM
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CONTENTS

	PAGE
Introduction	3
Acknowledgments	3
Geography	4
Contact with Western culture.....	6
People	9
Language	10
Social organization	15
Traditional history	15
Genealogical record	17
Blood relationship terms.....	26
The biological family.....	31
Sex concepts	31
Birth	32
Puberty customs	33
Marriage	35
The household	39
Rank and title	43
Authority and law.....	51
Warfare	54
Property	57
Land settlement	60
Villages	60
The spread of population.....	62
Social observances	71
Individual greetings	71
Reception of visitors.....	72
Dances	77
Hospitality	79
Sickness and death.....	80
Myths and religion.....	85
The gods	85
Religious procedure	87
Communication with the gods.....	87
Ceremonial pattern	90
The turtle ceremony.....	91
Houses	93
Kinds and uses.....	93
Common dwelling house.....	93
The pasaka	97
The hare pou	99
House furniture	99
Cooking	100
Methods	100
Utensils	101
Foods	106
Variety	106
Flesh foods	107
Coconut	108
Significance	108
Botanical features	108

	PAGE
The uto	110
Stages of growth.....	111
The fluid	113
Foods derived from the flesh.....	113
The husk	115
Husking implements	116
Carrying pole and climbing bandage.....	117
Hala	118
General observances	119
Meals	119
Feast for visitors.....	119
Angling for visitors.....	122
Sex differentiation	123
Plaiting	123
The process	124
Coconut sheets, screens, and mats.....	128
Lauhala mats	130
Baskets	130
Midrib basket	130
Twilled baskets	131
Cordage	136
Comparisons	137
Clothing and adornment.....	138
Stonework	145
Materials	145
Paths, wharves, and fish ponds.....	145
House foundations	147
Maraes	148
Distribution	148
Ground plan	150
Pillars	153
Curb stones	156
Platforms	157
Pavements and marae houses.....	157
Individual maraes	159
Function of the marae.....	177
Comparisons	178
Stone circles	180
Graves	182
Adzes	186
Canoes	189
Construction	189
Parts of the canoe.....	191
Fishing	197
Methods	197
Groping	197
Snaring	197
Sweeping	198
Driving	198
Spearing	199
Angling	200
Nets	201
Lines	202

	PAGE
Hooks	202
Parts of the hook.....	202
One-piece shell hooks.....	203
Composite hooks	204
Comparisons	211
Weapons	212
Spears	212
Clubs	213
Stones	214
The stars and calendar.....	215
Legend of Maahu and Maui.....	215
The year	215
Nights of the moon.....	216
Literature cited	221
Plate legends	223

ILLUSTRATIONS

	FOLLOWING PAGE
PLATE 1. Preparing roro and husking coconuts.....	226
2. Double wall screen and oven cover.....	226
3. Sitting mat and tupono basket.....	226
4. Coconut leaf baskets, eye shade, and perineal band.....	226
5. Marae pillars	226
6. Features of maraes.....	226
7. Marae platforms	226
8. Bonito hooks and drinking bowls.....	226
	PAGE
FIGURE 1. Map of central Pacific showing position of Tongareva.....	4
2. Map of Tongareva.....	5
3. House framework	94
4. Wooden needle for sewing roof sheets.....	95
5. Sewing hala thatch sheet.....	96
6. Pasaka house	98
7. Coconut leaf shelter	99
8. Wooden back support.....	100
9. Pearl shell hand graters.....	103
10. Coral stand grater.....	104
11. Grater for hala fruit.....	106
12. Stages in growth of coconut.....	111
13. Plaiting technique, full midrib commencement.....	126
14. Plaiting technique, two-strip commencement.....	127
15. Raurau basket, first side.....	131
16. Raurau basket, second side and braid finish.....	132
17. Twilled basket, extra wefts and end join.....	133
18. Twilled basket, two-course braid finish of bottom.....	135
19. Eye shade	142
20. Diagram of model Tongarevan marae.....	152
21. Simple marae pillars.....	153
22. Flanged, notched, and worked marae pillars.....	155
23. Tokerau marae	160
24. Te Tohi marae.....	161
25. Te Hara-taurekareka marae.....	162
26. Arahura marae	163

	PAGE
27. Mahora-kura marae	163
28. Mahue marae	164
29. Rauhara marae	165
30. Hoenga-waka marae	166
31. Te Puka-nui marae.....	167
32. Te Rupe-tangi-rekareka marae.....	168
33. Nukurea marae	169
34. Tongariro marae	170
35. Hakataungari marae	171
36. Rakahanga marae	172
37. Te Vete marae.....	172
38. Hangarei marae	174
39. Te Reinga marae.....	175
40. Marae of refuge, Te Papa-o-Sokoau.....	176
41. Stone circle and ellipse.....	180
42. Graves	183
43. Graves	183
44. Adz of Tridacna shell.....	186
45. Separate foot of Tongarevan adz handle.....	187
46. Lashing adz to detached foot.....	188
47. Adz handle	188
48. Tongarevan canoe	189
49. Canoe keel	191
50. Hull plank	192
51. Hull lashings of Tongarevan and Samoan plank canoes.....	192
52. Section of plank join, Tongarevan and Samoan canoes.....	193
53. Gunwale	193
54. Model paddle	195
55. One-piece pearl shell fishhooks.....	203
56. Bonito hooks	205
57. Snood loop and lashing of bonito hook.....	206
58. Bonito hook lashing and hackle.....	207
59. Bonito hook, completed lashing of point, snood loop, and hackle.....	207
60. Bonito hook, lashing of snood to shank head.....	208
61. Ruvettus hook	209
62. Shark hooks	210
63. Weapons	214

TABLES

	PAGE
TABLE 1. Polynesian consonants	12
2. The three main lines of descent.....	18
3. Genealogy of multiple descent, ara from one family.....	24
4. Relationship terms	27
5. Genealogy showing prohibited degrees of consanguinity.....	36
6. Descent of the ariki, Pohatu and Poaru.....	47
7. Genealogy illustrating early spread of population.....	66
8. Development and use of the coconut.....	112
9. Sites and condition of the maraes of Tongareva.....	149
10. Dimensions of maraes.....	151

Ethnology of Tongareva

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INTRODUCTION

ACKNOWLEDGMENTS

This study of the atoll of Tongareva, commonly known as Penrhyn Island, is based on field work conducted under the auspices of the Bernice P. Bishop Museum in 1929.

Tongareva is served by two trading schooners which sail from Rarotonga. These schooners do not make their first trip until late in March or April, when the hurricane season is over. In November they sail to Tongareva to lie up for the hurricane season within the lagoon at Omoka, the only safe port in this part of the Pacific. I arrived at Tongareva in the end of June by the schooner *Tiare Taporo*, which left seven days later for Tahiti. Through the kindness of Judge Hugh Ayson, resident Commissioner for the Cook Islands, arrangements enabling me to leave Tongareva with the British sloop H. M. S. *Veronica*, which called there and left again on July 13, were made by wireless. Seventeen days were spent on Tongareva, all too short a time to do justice to the special problems of that extremely interesting island.

My thanks are due to Sir Apirana Ngata, Minister in charge of the Cook Islands in the New Zealand Government, for his Polynesian welcome conveyed to the group by letter. I am under deep obligation to Judge Ayson for assistance in arranging that my first six days of work should fit in with his official holding of the Land Court in Tongareva. Mr. S. Savage, Registrar of the Court, assisted with the Tongarevan genealogies, and Mr. H. Williams with the recording of anthropometrical measurements. To Mr. Wilson, resident government Agent, I am indebted for accommodation during my stay and, together with W. Phillip Woonton, for invaluable assistance in locating and mapping out the maraes in the various islands. To Captain Viggo of the *Tiare Taporo*, Mr. Wilkenson, trader, and others I am indebted for many kindnesses. Pa, the oldest inhabitant, with Ma, his wife, Tupou Isaia and others of the Tongarevan people contributed field information for this work, and by recognizing my Polynesian kinship, enabled me to adjust my Maori background to that of Tongareva. To Commander Robertson of H. M. S. *Veronica* my thanks are due for hospitality and transport to Raiatea, where I was able to connect with a mail steamer to

Rarotonga and resume work in the Cook Islands. My thanks are due to Mr. J. A. Campbell of the Cook Islands Trading Company for promptly clearing up by correspondence some obscure points in ceremonial observances.

GEOGRAPHY

Tongareva, an atoll situated in latitude $9^{\circ} 8' S$ and longitude $157^{\circ} 10' W.$, is the largest and farthest north of the lagoon islands under the Cook Islands administration of New Zealand, but it is not, geographically, one of the Cook Islands. It is composed of a ring of islands spaced along a reef about 40 miles in circuit with a contained lagoon of about 108 square miles.

The name, Tongareva, means "Floating Tonga" and was given to the atoll by the Polynesian discoverers. Gill (6, p. 11)¹ gives Fararanga as an older name, which he interprets as "land." As the Tongarevan dialect contains no *f* sound, Gill probably confused it with Raroranga, which is mentioned in one of the genealogies collected, "The growth of the human stock of Raroranga, Tongareva."

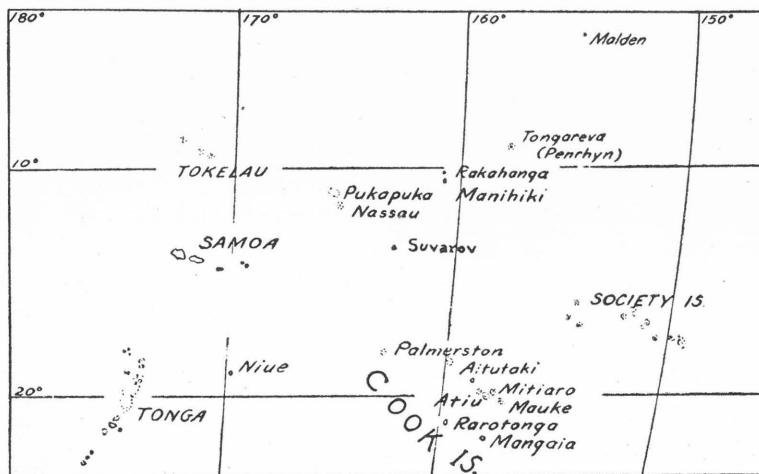


FIGURE 1. Map of part of the central Pacific showing the position of Tongareva (Penrhyn) Island.

No complete survey of the atoll has been made; figure 2 is a rough approximation. The sizes of the islands are only indicated, but their relative positions and correct native names were checked with the assistance of Tupou Isaia, who acted as the guide during various expeditions to locate the maraes. Smith (23, p. 90), from data given by Lamont (15), gives a list of 14 islands, with one small island. Here confusion has arisen because Lamont did not make it clear that some of the names he gave were of divi-

¹ Numbers in parentheses refer to Literature Cited, pages 221 and 222.

sions or districts. Thus, the first four names on Smith's list are all on the one large island to the southwest; of these, Mangarongaro and Hakasusa are the two main divisions of the island. Sararak, which figures prominently in Lamont's account, cannot be located, but it was probably the district in which Opaka, the leading chief, lived. Tahiti was also a district in which Opaka lived, and it is definitely located. Similarly, Omoka and Motukohiti are not separate islands but two divisions of the large island which lies on the west. Te Puka in the southeast and Motu-unga ("Motunga"?) to the

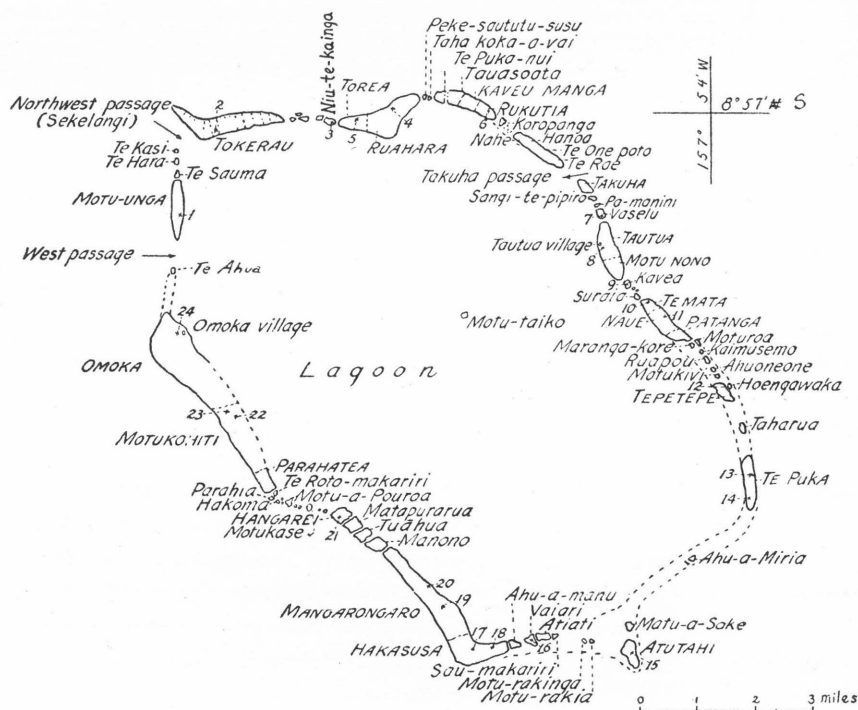


FIGURE 2. Map of Tongareva showing islets, passages, land divisions, villages, and maraes. Based on a British survey of 1881. (Additions by K. P. Emory and Te Rangi Hiroa.)

north of Omoka and Motukohiti are separate islands. Tokerau in the north is undoubtedly correct as the name of an island which is divided into a number of districts, but Ruahara, also in the north, is part of an island of which the other division is Toreia. Tautua and Motu-nono ("Motumuno") are the two divisions of one island in the east, and Te Mata ("Tamata") is one of the three divisions of another island on the east, the other divisions being Naue and Patanga. Hangarei ("Hangary") is one of four small islands separated from Mangarongaro by shallow channels. The other

islands are Matapurarua, Tuahua, and Manono. Etukaha, which Smith considered the correct form of Lamont's "Etuchacha," is the small island of Atutahi in the south. Thus Smith's list of 15 islands diminishes to 8 islands and parts of two others. On the other hand, the following small islands that once were inhabited have been omitted: in the south, Vaiari and Atiati; in the east, Tepetepe, Kavea, Vaselu, and Takuha; and in the north, Niu-te-kainga. Of these seven islands, all except two have maraes. In addition, there are two large islands in the north, one containing the district of Rukutia and the other that of Nahe. The names of 33 small islets not fit for permanent occupation were given and marked on the map in their approximate positions, but there are probably others. One small island is situated well within the lagoon, and it is curious that its name of Motu-taiko should be the same as the name of the one island situated in Lake Taupo in New Zealand. The larger islands had no single name but were distinguished by the divisional names.

The islands are composed of coral and sand and nowhere rise more than 50 feet above sea level. In official records the total area is given as 40,000 acres.

Three passages through the reef admit small vessels into the lagoon. The northeast passage named Takuha is situated between the islands of Te Rae and Takuha. The northwest passage named Sekelangi lies between Te Kasi and Tokelau. The west passage between Motu-unga and Omoka is the largest and is about 40 yards wide and 21 feet deep. It admits vessels of fair size, such as H. M. S. *Veronica*, which can anchor within the lagoon. Trading schooners can tie up against the wharf at Omoka and those trading in the Cook Islands usually go to Omoka to lie up for the hurricane season. The lagoon is very deep but contains upgrowths of coral which have to be avoided in navigation. The natives have names for the various shallows and coral upgrowths. The reef on the lagoon side of the islands extends a varying distance from the shore and the deeper channels influence the location of landing places on the islands. The large pearl shell—responsible for the eventual growth of trade—and the small *pipi* shell are both abundant. The small *Tridacna* (*pasua*) abounds and forms an important food supply.

CONTACT WITH WESTERN CULTURE

Lieutenant Watts of H. M. transport *Lady Penrhyn* was the first European to discover the Tongarevan atoll, in August, 1788, while he was on his way to China from Tahiti.

Kotzebue, the Russian navigator, visited the atoll in the *Rurik* on April 30, 1815, during his first voyage to the South Seas (1815-1818). He states

(14, vol. 3, p. 217): "As soon as we had approached the shore, innumerable boats surrounded us, and a peaceable people offered to trade with us." The people, however, had nothing to trade except coconuts, some utensils which they had taken by chance with them, and their weapons. "They first hesitated to barter their arms, and would not part with them, except for long nails or scarlet worsted girdles." Kotzebue had no trouble with the islanders, who passed around the vessel "with much affability and confidence" but would not accept invitations to go on board. In addition to Kotzebue's account of his voyage, Choris (3), the artist who accompanied him, published an illustrated description of the voyage which contains an illustration of a Tongarevan canoe and two types of spears.

Endicott (5), sailing from Maui, Hawaii, in the *Glide* on a trading expedition to Fiji, sighted Penrhyn on November 6, 1830. He described the natives, who "came off in great numbers . . . perfectly savage and fierce, hallowing and shaking their spears." According to his account the captain, in trying to persuade one of them to come on board, was slightly wounded in the neck by the spear of another native. The aggressor probably thought that the captain was trying to capture his relative. The captain immediately ordered his men to fire, and seven or eight natives were killed. Endicott (5, p. 30) sums up the position as follows: "We immediately filled our sails and stood on our course leaving the natives to bewail the visit of civilized people to their uncivilized shores." He evidently saw no incongruity in his statement.

The *Porpoise*, one of the ships of the American Exploring Expedition under Wilkes, touched at Tongareva on February 15, 1841, while Wilkes was in Hawaii. The atoll was found to be 30 miles west of the position given by Captain Cash (31, vol. 4, pp. 296-298). A large number of canoes came out to the vessel and many of the people were allowed on board. A little unpleasantness occurred because of pilfering, but it blew over without any casualties. A certain amount of trade went on. The natives were found to be absolutely fair and honest in handing up their own goods for exchange after receiving the desired articles from the ship. Unlike the *Glide*, the *Porpoise* left without causing the natives to bewail the visit of a civilized people.

The brig *Chatham*, after trading in the Society Islands, Marquesas Islands, and the Cook Islands was wrecked on Mangarongaro in 1853, while on her voyage back to San Francisco. The whole crew was hospitably received by the inhabitants. The captain, doctor, and a few others sailed away in a boat made on the island, abandoning Lamont, the trader who chartered the *Chatham*, and some other members of the crew. Lamont, who subsequently got away on a whaling ship and wrote up his experiences,

reached a position of great influence on the atoll. His book (15) is one of the best narratives of first-hand contact with a group of Polynesian people before they were influenced by western culture. As he described many customs that have disappeared entirely, his observations will frequently be referred to in this work.

In the year following the wreck of the *Chatham*, Christianity was introduced by native pastors from Rarotonga, the headquarters of the London Missionary Society in the Cook Islands. The people were collected together in four villages to facilitate the teaching of the new religion, which they readily accepted.

In 1864 Tongareva was almost depopulated by Peruvian slavers. Stern-dale, quoted by Smith (23), states that in 1864 at least 1000 men, women, and children were taken to South America. The present population attributes to the influence of native pastors the chief responsibility for this exodus. The four villages were strongly desirous of building large churches. The slavers held out promise of good pay and a safe return, and pastors and people decided to go abroad to earn enough money to erect buildings worthy of the worship of God. However, the thousand people who left their island homes all died as slaves in exile, the victims of hypocritical and inhuman types of white men.

Through missionary influence the contact of Tongareva was with headquarters at Rarotonga. The London Missionary Society taught largely through native pastors and instituted a system of laws which applied to temporal as well as to spiritual matters. Many of the customs that had served their purpose in the old culture were displaced by the culture associated with the new religion. Also, the power of the chiefs was curtailed and much of it transferred to the missionaries.

As trade developed a loose British Protectorate was maintained over the Cook Islands, in spite of French attempts to link up the islands with the French Administration in the Society Islands. A British Consul was appointed at Rarotonga in 1888 and paid for by New Zealand. The *ariki* (high chiefs) of the Cook Islands formed a Federal Council at about the same time to administer the group. In 1900 the council of *ariki* petitioned the Governor of New Zealand to annex the Cook Islands as part of the British Empire and recommended that Penrhyn, Manihiki, Rakahanga, Palmerston, Pukapuka, and, if possible, Niue be included in the federation with New Zealand.

In 1901 the Government of Great Britain issued an Imperial Order in Council extending the boundaries of New Zealand to include the islands mentioned above. On June 10, 1901, a Proclamation was made at Auckland by Lord Ranfurley, then Governor of New Zealand, in the presence

of H. R. H., the Duke of York, who later succeeded to the throne as King George V. Since that date Tongareva has been part of New Zealand.

PEOPLE

Because so many of the islands were settled and because divisions of the large islands put war parties in the field it may be inferred that the atoll once supported a much larger population than it does at present. The estimate that 1000 were taken away by the Peruvian slavers in 1864 makes it likely that the pre-European population was about 2000. A contrast is revealed by the figures of the last few censuses.

Year	Males	Females	Total
1906	420
1911	335
1916	326
1921	376
1926	201	189	390

The last census does not include five Europeans. The figures show a decrease down to 1916, after which there is a definite increase.

The Cook and Other Islands Report of the New Zealand Government for the year ending March 31, 1929, states that for the year the births were 22 (males, 17; females, 5) and the deaths 4 (males, 1; females, 3). There was thus an increase in population of 18 for the year.

The early navigators remarked on the well set up figures of the men. Kotzebue (14, p. 217) stated that they were strong and well made, and that the elderly people were corpulent and large.

Time permitted of the anthropometrical measuring of but 21 full-blooded males, details of which will be published later. A few remarks, however, are offered here.

The skin color is darker, probably due to extra exposure in fishing and diving for pearl shells and *pipi* pearls. The hair is black in color and straight or in low waves. Beards are not now worn but Lamont (15) remarked that they were abundant, and some were curled and with auburn ends. He also remarked on auburn hair among some of the women. The men have little or no hair upon the body. The eyes are medium-brown to dark-brown with no trace of the Mongoloid fold at the inner angle. The foreheads are well formed and the glabella is more prominent than in the people of the Cook Islands.

Early writers remarked on the tall stature of the men, but the small series averaged 170 cm., which is shorter than in most branches of Polynesian stock.

The maximum head length averaged 192 mm.; the head width, 158 mm.; the minimal frontal, 104 mm.; and the cephalic index, 82.3. The faces of many were very high and broad, the average face height being 130 mm.; bizygomatic width, 149.5 mm.; bigoniac, 116.6 mm., and the face index, 86.

The nose matches the face with the average height of 62 mm.; width, 43.2 mm.; and nasal index, 69. The high, broad faces, broad noses, and prominent glabellae make the countenance strong and massive in expression.

The women are much more slender than the men, and the expression is softer and milder. As in other branches of their race, their hands are small and beautifully formed.

Both sexes have all the hospitality of their race and are ever ready to make presents of coconuts and fish. They have so few material goods with which to express their feelings that the giving of *pipi* pearls, which they can secure by diving, has become their method of expressing friendship to the visitor who sojourns among them. They are quick to express their opinions and sometimes a village argument takes place with so much noise that a stranger imagines that blood will flow. Having expressed themselves, sometimes physically, the tumult subsides and no bad feeling is retained. The people are honest and outspoken, and kind, under an apparently austere demeanor.

LANGUAGE

The Tongarevan language is a distinct dialect of the Polynesian tongue. Reading and writing have been taught by native pastors, who have been trained by the London Missionary Society in Rarotonga. The Bible has been translated into the Rarotongan dialect, and the alphabet taught is that compiled for Rarotonga. This alphabet is quite inadequate for the recording of the Tongarevan speech, for not only has the *h* sound been omitted from Rarotongan, but it has no *l*, *s*, or *w*, all of which are present in Tongarevan speech. The vowels consist of the usual Polynesian five, *a*, *e*, *i*, *o*, and *u*. The Rarotongan consonants used consist of seven, *k*, *r*, *m*, *n*, *p*, *v*, and *ng*. The early missionaries who drafted the alphabets for the various Polynesian dialects had extreme difficulty in distinguishing between the sounds of *l* and *r* and of *v* and *w*. These and other doubtful sounds were settled for the usage of the Hawaiian alphabet by a committee which, as recorded by Spaulding (25, pp. 32, 33), took the votes of nine missionaries. Though the English language contained all the letters, the missionaries have standardized the Polynesian dialects by restricting them to one sound of a doubtful pair, though both sounds were evidently in use. Some of the difficulty arose because subdialectal differences occurred in different localities of the same group of islands and standardization was felt to be necessary for

printing the Bible and other religious literature. Thus in Hawaii the original *k* sound had been dropped and was represented in speech by the glottal closure. Later, the *k* sound began to displace the original *t* sound, but the process was by no means complete. The committee settled the matter by adopting *k* and discarding *t* and thus arbitrarily completing the transition. The difficulty with the *l* and *r* and also with *v* and *w* is that probably the original sounds were intermediate.

In time the tendency was to go in one or the other direction. Thus, in New Zealand the *l-r* sound became definitely *r* and the *v-w* sound became *w*, so that the dialect became standardized in the sounds by the Maoris themselves. In Samoa, the *l-r* sound became definitely *l* and the *v-w* sound became *v*, so that the dialect also standardized itself in these two sounds. In the Cook Islands, however, and probably other areas such as Hawaii the process of the sharper definition of the uncertain sounds went in both directions. With regard to the assumed *l-r* sound, in some words the tongue reached the palate with more pressure and produced the distinct *l* sound, and in others the tongue was kept away from the palate and produced the *r* sound. Similarly, in the *v-w* sound in some words the lips contracted in and produced the *w* sound, whereas in others the closure of the buccal orifice was produced by the upper teeth touching the lower lip so that a *v* sound resulted.

The proper method of exact study would have been to watch and inquire as to the movements of the mouth and tongue in order to supplement the sense of hearing. Each word should then have been recorded phonetically and an alphabet compiled to meet the needs of the dialect. As it was, the compilers of the alphabets, with few exceptions, did not adequately represent the sounds of the Polynesian dialects. Table 1 gives the alphabets and sounds of some dialects for comparison with those of Tongareva.

If the *s*, which I doubt, *l-r*, *v-w*, and *f-wh* are treated as original consonant sounds, the total number of original consonant sounds is eleven. Of these Tongareva has maintained ten, but the *f-wh* sound is represented by *h*. There are thus no dropped sounds or glottal closures in the dialect. Furthermore, by duplicating the original *l-r* and *v-w* sounds into distinct *l*, *r*, *v*, and *w*, the dialect has added two more consonants and thus totals twelve consonant sounds. In the number of consonants it is only equalled by Manihiki. Tongarevan is more nearly allied with Rarotongan in consonant sounds, however, for, though Tongareva has the *s*, both are without the *f-wh* sound, and there is thus but one positive difference. Manihiki, by not having the *s* and having the *wh* sound, has two points of difference. In Tahiti the absence of the *ng* increases the difference from Tongareva. The presence

Table 1. Polynesian Consonants

Original sound	Tongareva	Manihiki	Rarotonga	Society Islands	New Zealand	Hawaii	Samoa
1. H	h	h	h	H	H	H	(s or f)
2. K	K	K	K	'	K	'	'
3. { L	l	l				L	
			R	R	R		L
4. { R	R	R				r	
M	M	M	M	M	M	M	M
5. N	N	N	N	N	N	N	N
6. P	P	P	P	P	P	P	P
7. T	T	T	T	T	T	(K)	T
8. { V	V	V	V			v	
				V	W		V
9. { W	w	w	w			W	
Ng	Ng	Ng	Ng	'	Ng	(N)	Ng
10. { F					Wh (as F)		
	(h)	wh	(h)	F		(h)	F
11. { Wh					Wh		
S(?)	S	(h)	(h)	(h)	(h)	(h)	S
11	12	12	10	8	11	9	9

Capital letter = Present in alphabet.

Small letter = Present in speech but not in alphabet.

() = Sound absent, but represented by letter in brackets.

Hamzah' = Sound dropped, but represented by glottal closure.

Rarotongan *h*, probably more correctly represented by the hamzah, is inserted for comparative purposes.

of the *s* in Samoa is offset by the presence of the *f* and the dropping of the *k* and the standardization of *l-r* and *v-w* into *l* and *v*, which is opposite to the tendency in Tongareva. Tongarevan has also the distinct sibilant sound of *ch* which will be dealt with under the letter *t*.

The *h* sound in Tongarevan is distinct. In a few words Tongareva follows the same usage as Rarotonga and New Zealand. In the following tables the *h* is inserted in Rarotongan words, though it is not included in the alphabet. The Samoan *h* is replaced by *s* or *f*.

Tongareva	Rarotonga	New Zealand	Samoa	Meaning
Tahuhu	Tahuhu	Tahuhu	(au'au)	ridgepole
Aroha	Aroha	Aroha	Alofa	love
Hakiri	?	Hakiri	Sa'ili (to seek)	to throw away

This *h* also appears in *hanga*, which forms the noun ending to verbs as *surahanga* (the turning over) from *sura* (to turn).

In most words, however, the *h* represents the *wh* of New Zealand and the *f* of Tahiti and Samoa. In this, it follows the Rarotongan usage.

Tongareva	Rarotonga	New Zealand	Tahiti	Samoa	Meaning
Hare	Hare	Whare	Fare	Fale	House
Hara	Hara	Whara (Astelia)	Fara	Fala	Pandanus
Haka-	Haka-	Whaka-	Fa'a-		Causative prefix
Hiri	Hiri	Whiri	Firi	Fili	To braid
Hariki	?	Whariki	Fari'i	—	To place under

The Tongarevan *k* resembles that of Manihiki, the Cook Islands, and New Zealand and distinguishes the dialect from Tahitian, Hawaiian, and Samoan, in which the *k* has been dropped and is represented by the glottal stop (').

The distinct *l* is present in such words as *talanga* (story), *talolo* (messenger between lovers), and *alelo* (tongue).

The presence of the *r* was noted in such words as *waru* (to scrape), *roro* (coconut cream) and *Rangi-saruru* (an ancestor). Lamont (15) uses the *r* in several native words and never the *l*. It is probable that some words are in the intermediate stage, but on the whole the *r* is more common than the *l*.

The *m*, *n*, and *p* require little comment, except that *n* generally replaces *ng* in *na* for *nga*, the plural of the definite article, "the."

The *s*, except in a few words, takes the place of the pure *h* of the Cook Islands and New Zealand and in this usage resembles Samoa. The following are examples.

Tongareva	Rarotonga	New Zealand	Samoa	Meaning
Saruru	Haruru	Haruru	Salulu (to blow)	to sound
Sape	Hape	Hape	Sape	mistake, club foot
Sere	Here	Here	Sele	to tie, to snare
Vavasi	Vavahi	Wawahi	—	to break
Songi	Hongi	Hongi	Songi	to press noses
Sosore	Hohore	Hohore	—	to peel off
Kaso	Kaho	Kaho	'aso	part of house frame
Asu	Ahu	Ahu	Asu	to heap up, to bail out

Lamont (15) seems to have heard an *sh* sound, for he writes *sarasara* (to wave the hands) as "sharashara" and Hakasusa as "Haka Shusha."

The *t* sound has undergone a curious modification in the sibilant sound of *tch*. The tip of the tongue is not so far forward against the incisor teeth as it is when producing the usual Polynesian *t* sound. The sibilant sound is more marked before the vowels *i* and *e*. Thus the line of the song, "Titia mai to titi maire" (Gird on your sweet-scented kilt) sounds like "Tchitchia mai to tchitchi maire." The phrase "Taku ate" (my liver), used as a cry of alarm or anger, is sounded as "Taku atchě." In the phrase quoted the *t* before *e* becomes sibilant, but the *t* before *a* is sounded as an ordinary *t*. Before *o* the *t* sound is unchanged, as in *to* (a spear), pro-

nounced *to*. Before *u* there seems to be a tendency to use the sibilant, for, though in all the island names commencing with "Motu" the *t* seemed to be distinctly sounded, Mr. Wilson, the resident government Agent, held that Motukohiti was pronounced "Motchukohitchy." Lamont, on the other hand, who wrote the sibilant *t* as *ch* wrote the same word as "Mutagohichy."

The sibilant *t* does not occur in Samoa, but in Niue the *t* before *i* and *e* is sounded as *s*, which shows a similar tendency in sibilant change. Williams (32, p. 418) quotes the method in Tonga of variously representing the pronunciation of *t* when it is followed by *i*, *j*, or *s*. The nearest approach to the Tongarevan *t* appears to be in the Chatham Islands where the *t* undergoes a change in sound before all the vowels except *o*. As quoted by Williams (32, p. 418), Shand represented the sound by writing *tch*, *tchi*, *tche* or *tc* for *t*. The peculiar pronunciation also occurred with *k* before *a* and with *h* before *a* or *o*. Williams remarks that in producing the sound "the tongue appears to be somewhat arched into the palate and the letter uttered with a slight emission of breath which not infrequently produces the effect of a suppressed *I*, or sometimes *E*, sound before the proper vowel of the word." Handy (8, p. 9) points out that in the Marquesan dialect, "In combination with different vowels there is a variation from a simple *h* sound to a distinct German *ch*, through *sch* to *s*, with a *w* sound often included." The resemblance of the Marquesan treatment of *h* to that of the Chatham Islands further supports the contention of Williams (32, p. 420) that of the affinities he discovered between the Chatham Islands dialect and other Polynesian dialects that with the Marquesan dialect figures most frequently.

The *v* sound is present in such words as *velo* (canoe stern) and *mataki-vikivi* (to turn aside); the *w* sound in such words as *wananga* (teaching), *waka* (canoe), *wahine* (woman). In spelling native words Lamont uses *oa* as in *oaka* (canoe) and *niu oara* (grated coconut). The word for canoe must be either *waka* or *vaka*. If *oaka*, *waka*, and *vaka* are carefully pronounced, and the position of the mouth, lips, and teeth noted for each, it will be evident that Lamont's *oa* was meant to represent *wa* and could not represent *va*. The same applies to *niu oara* which was meant for *niu waru*, the *oa* again representing the *w* sound. In recording Polynesian words for the first time I have often failed to distinguish between the sounds *oa* and *wa* and have had to repeat the word slowly to get the correct sound. Lamont uses other words such as "oahine" (*wahine*), showing that before the advent of the Rarotongan alphabet the sound that he heard was *w*. Lamont did not use the letter *v* in any native word. This does not signify that the *v* was not present in the dialect, but only it was not present in the few words that Lamont used. Thus, the tendency with the *v-w* sound was more toward the *w* than the *v*, just as the *l-r* sound was more inclined toward the *r*.

The *ng* sound is present as in the Cook Islands, New Zealand, and Samoa as contrasted with Tahiti, where it is represented by the glottal stop, and with Hawaii, where it is represented by *n*.

The affinities in dialect given above are based entirely on the sounds. My impression from the vocabulary acquired during my brief stay was that there was more affinity with Rarotonga and New Zealand than with Samoa. The compilation of a complete vocabulary for the Tongarevan dialect may disclose other closer affinities. With a knowledge of the Maori and Rarotongan dialects I had no difficulty in speaking and understanding Tongarevan, whereas I experienced much more trouble with Samoan and Tahitian.

SOCIAL ORGANIZATION

TRADITIONAL HISTORY

The study of the social organization of a Polynesian community is best introduced by a consideration of traditional history, which retains the accepted facts of ancestral origin and settlement upon the land, together with the social status through inheritance of all members of the community and their rights to land through occupation and succession. For the Polynesian the recital of historical events lacks conviction unless it is accompanied by the appropriate chants and songs; the mention of historical characters lacks force unless descent can be traced from them. Literature, history, and poetry are combined in the oral recitals which are listened to with the greatest of interest and attention even to the present day.

The chronological sequence of events is maintained in family pedigrees, and the learned historian is also an expert genealogist. The preservation of traditional narratives is in the care of respected experts of priestly or chiefly rank, the recipients of previous knowledge instructing suitable members of the next generation in order to preserve the family records. Family pedigrees are no longer memorized but written down in notebooks which are referred to when occasion demands. Some old men have been careless, and their families have had to seek advice from others. The genealogical method used by Rivers (21, a) in his study of Melanesian society is in reality in constant practical use among Polynesians in analyzing their position and relationship in their own social structure. Polynesian genealogies may be divided roughly into three periods that may be designated the mythical, exploratory, and settlement periods. The early lack of scholars is evidenced by the shortness of the genealogies dealing with the migrational and mythical periods, but complete pedigrees from the settlement period are preserved in detail by every family.

The settlement period is definite, for most Polynesians recognize the ancestral migrations to the islands they now occupy. The traditional history gives the names of the progenitors who came from another land and usually gives such details as the name of his canoe, the names of some of those who accompanied him and anything of note that was brought. If more than one canoe brought settlers the genealogical line to each one is preserved. If settlement occurred at different periods the difference in time is usually correctly indicated by the differences in length between the lines of descent. The historical narratives supplement the tables by reference to contemporaries and to the marriages between distinct lines. The genealogies of the later immigrants, who usually became dominant, are generally clear-cut, but those of the older settlers are sometimes obscured. Obscurity may have been brought about because of untrained historians in the earlier migration or through the forgetting of details in tracing descent to the later, more socially important arrivals with whom the older lines intermarried. The pedigrees covering the settlement period retain the names of both husband and wife and generally of all of their children. In Tongareva the definite commencement of the settlement period is traced from Mahuta-nui, through the descendants of his two wives, and Taruia, but a third line seems to have been in occupation before either of them.

The exploratory period covers the time occupied between leaving a remote homeland and the settlement upon a certain island. The genealogies covering this period vary considerably. In Mangaia there is no exploratory period, for the sons of the well known god, Rongo, drew the island out of an under-seas spiritual Avaiki to its present material position, with themselves upon it. With them commences the settlement period which thus links directly with the mythical period. In some localities, such as Rarotonga, the exploratory period may cover 60 generations or more, and the explorations of different ancestors figuring in the tables are given with fair detail. The local differences are doubtless due to the absence or presence of scholars in the different migrations, the social status of the immigrants, and accidents that removed recording historians. Details concerning the nearer ancestors may be preserved in bilateral pedigrees giving collaterals. In this period the names of famous explorers appear in the genealogies of separated groups, thus showing common descent. As the period becomes more remote, details disappear, and the pedigree becomes a single list of names. The single list merges into the mythical period, from which it is often not clearly defined.

Genealogies of the mythical period may contain allusions to a fatherland from which the migrants set out into the Pacific. They may embody a theory of creation. Most of them give a list of gods and derive them from two primary parents representing a sky father and an earth mother. A philosophy

of the order and sequence of natural phenomena may also find expression in a pedigree in which the exploratory and settlement periods are linked together.

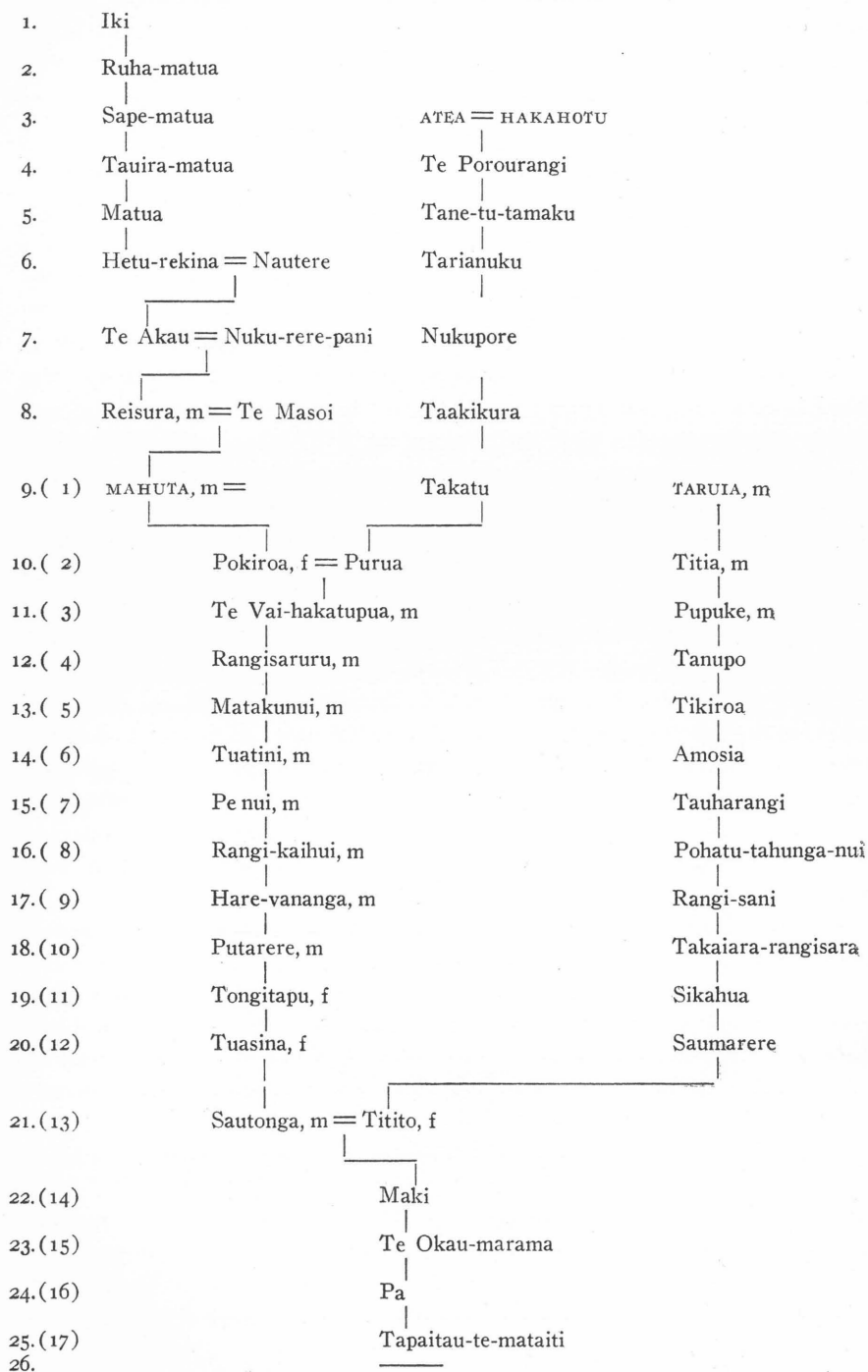
THE GENEALOGICAL RECORD

At the meetings of the Native Land Court at Omoka the genealogies of the island were collected to form the basis of the rights of the people to land. Every inhabitant claims descent from one of the three main lines of ancestry which, through intermarriage, have been fused. Table 2, which shows the three sources as they are traced in the family of Pa through twenty-six generations, illustrates the fusion that has taken place.

In generation 9 Mahuta and Taruia were both immigrants, but Takatu seems to have belonged to a previous migration. Taruia arrived in Tongareva before Mahuta. He came from Savaiki, from "na turuturu matua" (the large villages). He is stated to have built the marae at Tokerau and left two men there, one of whom jumped overboard and swam to Omoka when the canoe was leaving. Taruia himself did not remain at Tongareva but, according to the genealogy of Pa, one of the men who remained must have been Taruia's son, Titia. Taruia is said to have met Mahuta later and given him two men to guide him to Tongareva. An Aitutaki tradition states that Taruia was an *ariki* in the island, and he was deceived by Ruatapu into making a voyage around the islands. Subsequently, on discovering that Ruatapu had supplanted him in the position of *ariki* in Aitutaki, Taruia sailed off and eventually brought up at Mangarongaro. Mangarongaro, the name of one of the island divisions, is used by the Aitutakians to distinguish the Tongarevan atoll. It is further stated that some of the descendents of Taruia subsequently returned to Aitutaki. The Tongarevan version associates Taruia with Tokerau and stresses his leaving. He probably went to Tahiti, where he met Mahuta. The Rarotongan genealogies of Ruatapu would place the Aitutakian Taruia at an earlier period than that shown in the Tongarevan list (Table 2).

Mahuta is a historical character in Rakahangan traditions, and he lived on Rakahanga until domestic troubles caused him to leave. His first wife, Roriki, was from Rakahanga. Both she and her son, Puneke, were drowned at sea, but a daughter, Pokiroa, survived. According to the Tongarevan story, Mahuta went to Tahiti, where he married Hotio, the daughter of Tu-koropanga, a well known chief of that island. Mahuta, after learning of Tongareva from Taruia, set sail for it in his canoe, Waimea. The canoe was so large that the outrigger float struck against a rock well to the side of the western passage, by which he entered the lagoon. He settled down and his daughter, Pokiroa, married Purua. Mahuta built the marae of Punaruku on Te Puka, in which he was buried. The Tongarevans are descended not only from Pokiroa, Mahuta's daughter by his first wife, but from the children of

Table 2. The Three Main Lines of Descent



his second wife, Hotio. Of Hotio's children, the eldest was a male named Pange. Although the closeness of Rakahanga to Tongareva makes direct communication seemingly easy, the traditional evidence of Mahuta's second marriage to the daughter of a Tahitian chief named Tu-koropanga supports the statement that Mahuta came to Tongareva via Tahiti. The names of Tu-te-koropanga and his wife, Rukutia, occur in Maori tradition relating to the period of occupation of the Society Islands. The same names are found in Hawaiian traditions in the form of 'Olopana and Lu'ukia. That this couple was known to the Tongarevan ancestors is evidenced in the names of the two adjoining islands on the north side of the lagoon, Koropanga and Rukutia. The Hawaiian ancestor, 'Olopana, came from Tahiti and the name occurs in Tahitian tradition as 'Oropa'a. Mahuta's father-in-law Tu-koropanga was married to Pouri and belongs to a later period than the Koropanga who was married to Rukutia. However, the association of the family name of Koropanga with Tahiti is sufficient evidence that Mahuta's route via Tahiti is probably correct.

The settlement period in Tongareva, as taken from the contemporaries Mahuta and Taruia to the year 1900, averages 18 generations. Taking the average number of years to a generation, adopted by the Polynesian Society as 25 years, the second settlement of Tongareva would have occurred in about the middle of the fifteenth century. This is fairly late, for genealogical evidence places the final settlement of New Zealand in the middle of the fourteenth century and the settlement of Rarotonga by Tangiia in about the middle of the thirteenth century. If, however, the Taruia of the traditions of Aitutaki and of Tongareva was the same person, the second settlement in Tongareva must be put back a century earlier, for Ruatapu, the contemporary of Taruia of Aitutaki, would be assigned to that date by genealogies of both New Zealand and Rarotonga.

The line which gives the descent from Purua, husband of Mahuta's daughter, goes back to the primary nature parents, Atea and Hakahotu. In answer to my inquiry as to which of Purua's ancestors first arrived on Tongareva and what the name of his canoe was I was told that there was no canoe because the Purua line had been on Tongareva from the time of the creation. It was emphatically held that Purua belonged to the soil and had no connection with the Taruia expedition. Thus there is evidence of an earlier migration, the details of which have been forgotten or overlaid by the Mahuta tradition. Working backward, Takatu, the father of Purua, is the genealogical contemporary of Mahuta and Taruia. From Takatu to the mythical Atea and Hakahotu, the genealogical table records but six generations. The shortness of this line is accentuated by comparison with Mahuta's genealogy, which goes back to Iki, and contains eight generations or two more without reach-

ing the mythical period. The migrational period of the Purua line is thus not only lacking in historical detail but shortened out of scholastic acceptance by being linked with the primary nature parents, Atea and Hakahotu, sometime around the period when Tangiia settled in Rarotonga. One of the Rarotongan genealogical tables contains no less than 68 generations from the period of Tangiia back to Atea. The discrepancy indicates a serious loss of scholarship in the Tongarevan tradition, which in itself is extremely valuable information concerning the events of some of the minor migrations. The absence of historical detail, combined with a mutilated pedigree, may indicate that the first settlers were without an educated priesthood and that the discovery of the atoll may have been made by chance by a small group of people who made the best of the fragments they remembered. The Taruia expedition was exploratory. The Mahuta expedition, with known data concerning the geographical location of the atoll, was a definite voyage for settlement, as is brought out by the tradition of introducing the coconut and the *Pandanus*, the marriage alliance with the people already there, and the history of permanent occupation. Other islands have a similar history of an earlier settlement followed by the arrival of settlers with more dominant chiefs from 'Avaiki (Tahiti).

During the 18 generations from the time of Mahuta the people multiplied and the three lines were connected by intermarriages. They spread over the habitable islands and planted the coconut wherever they went. They built their religious inclosures (maraes) and houses and made the most of the material which their environment provided. The foundations of their culture had been laid in other lands, but their environment, with its meager natural resources, exerted its influence on adaptation and adjustment in a flat island.

The importance attached to blood relationship is shown by the care given to the preservation of family pedigrees. The genealogies prove the blood kinship and the derivation from common ancestors. The older men were accustomed to recite a preliminary introduction to the genealogy. One recited by Tupou Isaia at the Land Court reads as follows:

1. Teia te titi te hanange nei,
Teia te hohoke te hanange nei,
Uruanga te kakau o te kite nei,
Uruanga te tamasi mate.
Kete onoono, kete matakitaki,
Pu aso kura, pua kau marama,
Soro mai ra.

2. Tatai roa ki na tupenaki o te rangi matua

Tatai roa ki te tau o Atea.

Tapekahia kia mau
Kia mau te serenga
Kia mau te napenga
Kia mau.

2. The descent goes back to the very regions of the heavens,
The descent goes back to the line of Atea.
Bind it to hold firmly,
Let the tying be firm,
Let the knotting be firm,
That it hold.

3. Tauria atu ra ki na tupenaki o te rangi matua,
 Koi te rau mata kakā,
 Koi te sau kakatonga ia Itu-ma-eva,
 Koi te tini o Rava-tangi-sere
 Koi te hanaunga a Iki,
 Koi te aoanga a Atea ma Hakahotu.

From the family of Iki,
 From the creation of Atea and Hakahotu.

This introduction contains so many archaic words that I was unable to get a literal translation. The general meaning in its application, however, can be understood. In the first stanza the reciter indicates the sources from which the knowledge of the person's pedigree is derived and ends with "Soro mai ra" (emerge from thence). The second stanza deals with the necessity for preserving the lines of descent. The third stanza again indicates the sources of descent and the last two lines mention the descent from Iki (ancestor of Mahuta) and the primary parents Atea and Hakahotu.

The introductory recitation is termed a *tau* or *tauranga*. It is usual to have one for each main line of descent. The one already given introduces the descent from Atea and Hakahotu through Mahuta's first wife, Roriki, whose daughter, Pokiroa, married Purua, the descendant of Atea and Hakahotu. A *tauranga* copied from a Tongarevan manuscript is attributed to Pouri, wife of Tukoropanga and mother of Mahuta's second wife, Hotio. Before commencing a genealogy through Pange or the other children of Hotio it was correct to recite the following:

Na Tangi-tuai, na Kahuruhuru, na Pokaiatu, na Tiakura, na Kura-tata. I taka ki ko ra, i taka ki konei ra. Na Akaiti mai, na Perai atu; naku, naku te mea o te po, naku naku te mea o te ao, te mea o te Kaumarama, te anga siri marie, te rangi taupe, te rangi tau, te maea, te makita—tina, karoa, tiakura.

An exact translation could not be found. The first proper names evidently form a list of ancestors who probably belonged to the home land of Hotio, that is Tahiti. The reciter goes on to say, "It falls there, it falls here," referring to the line of descent. "Mine, mine, are the things of the night, mine, mine, are the things of the day" refers to the fact that everything is clear to the reciter. He concludes with mystic words of knowledge which prove his contention. The reader, like the hearer, has to take the assertion for granted, as the very fact that such introductions are used shows that the person who used them had been well taught. That the meaning of words may be forgotten does not in any way detract from their value in an orthodox commencement. The reciter experiences pleasure and satisfaction in making the correct opening and his hearers are influenced by the mere sound of the words to regard him not only as a scholar, but to accept the veracity of the pedigree that he subsequently unfolds.

Some of the *tau* have been composed for a particular line such as that

of the high chief, Poaru, which commences with, "Tautaitini, Tautaitini, ko te tini o Atea" (Myriads, myriads, it is the myriad of Atea). Then follows a list of names: Rangiatea, Haitonga, Rehua, Matanui, Rorangi, Arotoki, Kaniu, Te Tau, Te Toronaki, Te Tapinga, Tangiruru, Te Isu, Te Taringa, Te Murimuringa, Tauaepuke, Tuarea, Te Matekaipo, and Maurirua and his younger brother, Tekeputa. The line then follows down from Maurirua. From Rangiatea to Maurirua there are 18 generations which with another 10 on to Poaru make 28. As Poaru, in another line of descent, is only 9 generations from Mahuta, the *tau* carries Poaru's line back for 19 generations beyond Mahuta's period. However, as the words Te Isu (nose) and Te Taringa (ear) occur in the list, it is likely that all the names are not those of real persons, but rather are fragments of forgotten lore that are recited in genealogical form to add dignity and length to the introductory chant.

The genealogist may preface his recital with the words, "Ko te hakatupuanga teia i te katirianga tangata o Raroranga, Tongareva" (This is the growth of the human lines of descent of Raroranga, Tongareva). Increase in population is *tupuanga* or *hakatupuanga*—words derived from *tupu*, to grow. A line of descent is *katiri* or *katirianga*; and, as growth and descent are not confined to human beings, it is qualified by *tangata* (human) to indicate clearly that human growth and increase are being dealt with. A genealogical term applied to descendants is *tira*, as in the phrase, "Te tupuanga teia o te tira o Mahuta" (This is the growth of the descendants of Mahuta). In dealing with the complete genealogical line the scholarly reciter will run down through the mythical period if it has not been included in the set form of introduction used. On reaching the names which are known to be human the father and mother may be given with such a qualifying phrase: "Noho atu Purua ia Pokiroa, te tamahine a Mahuta; kua hanau mai ko Te Vaihakatupua" (Purua stayed with Pokiroa, the daughter of Mahuta; there was born Te Vaihakatupua). The term *noho* (to stay or remain with) is used to indicate what is understood by marriage. If the reciter is concerned solely with his own descent, he will mention the one offspring of each marriage that concerns him. The other brothers or sisters are the concern of those who are descended from them and are left for them to trace down. If, however, he is required to expound his knowledge as an expert, he will recite the names of all the children of each marriage together with their sex, and he will then repeat the name of his particular ancestor, the person married, and all of their children. If the ancestor had more than one wife, the wives and offspring in the order of marriage will be enumerated. In denoting sex, the following terms are used:

Tamaiti: male child

Tamahine: female child

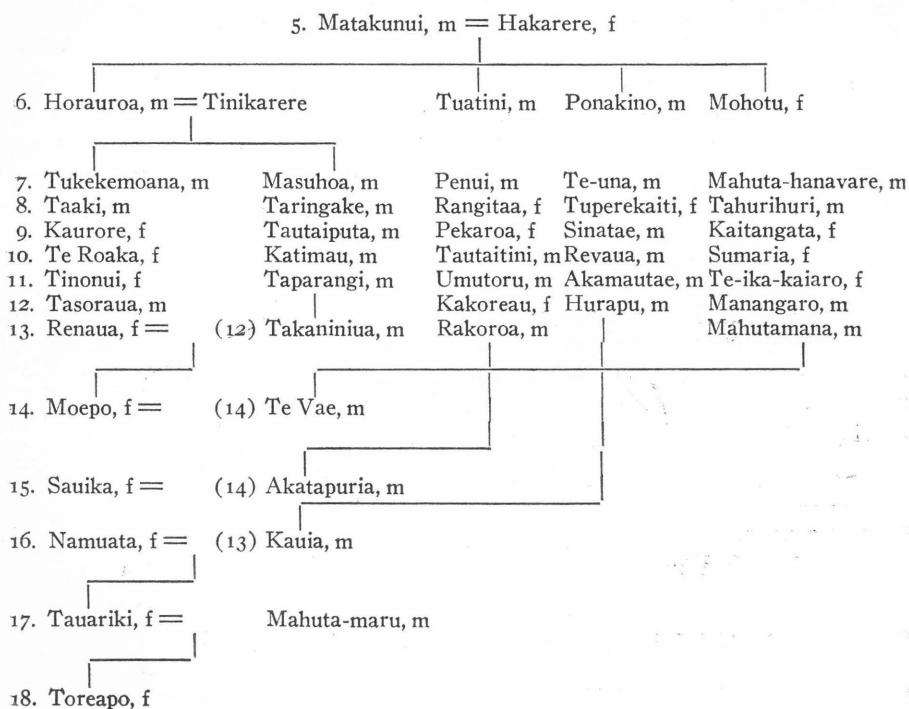
Tuangane: brother of a female
 Tuahine: sister of a male child
 Teina: younger brother of a male
 Teina: younger sister of a female
 Tane: male, husband
 Wahine: female, wife

If there is only one child to the marriage the male sex is indicated by adding *e tane* (a male) to the proper name, or *tamaiti* may be used; if a female, *tamahine* is used, but *wahine* may be used. Usually the main lines of descent are so well known that the reciter does not specify the sex of single births. When two children are named the form of recital indicates the sex of the second if it differs from that of the first. Thus, "Anau mai ko Sinatae ma te tuahine to Sikira" is literally, "Born were Sinatae and his sister Sikara." The use of the term *tuahine* indicates that Sikira is a female and sister to Sinatae, who is therefore a male. If the first born is a female the term *tuangane* is applied to the second name: "Anau mai ko Tiakura ma te tuangane ko Arenikau" (Born were Tiakura and her brother Arenikau). If the first born had more than one brother, as Tiakura had, the plural, *mana*, must be prefixed to *tuangane* instead of the singular, *ma te*, as in "Anau mai ko Tiakura mana tuangane ko Arenikau ko Maurisare" (Born were Tiakura and her brothers Arenikau, Maurisare). The grammatical construction of *mana* is *ma* (and) and *na* (the plural form of the definite article *te*, meaning "the," and corresponding to the *nga* of other dialects). The term *tuahine* may thus be translated literally "his sister"; and *tuangane*, "her brother." When the two offspring are of one sex, the term *teina* is used: "Anau mai ko Matakunui ma te teina ko Takikava" (Born were Matakunui and Takikava, who was younger and of the same sex). The term *teina* indicates that the person to whom it is applied is of later birth and of the same sex as the person first named, but there is nothing in the word itself to indicate the sex. It is well known throughout Tongareva that Matakunui was a male, and that Takikava was, therefore, his younger brother. The stranger from outside would have to ask what the sex of Matakunui was, when the position would be made clear. The same word, *teina*, is applied to the younger of two sisters, and again the sex of the elder must be asked for by the ignorant. In a careful recital the sex which is not clear in the term *teina* may be cleared up by indicating the sex in the subsequent marriage which follows as a matter of course in a genealogical recital. Thus the sex of both Matakunui and Takikava is cleared up when the genealogist goes on to say, "Noho atu Matakunui i te wahine ia Hakarere" (Matakunui married a wife, Hakarere). The sex of the female *teina* is also cleared up by the subsequent marriage as "Noho atu Hakau i te tane ia Apikara" (Hakau married a husband, Apikara). The use of the relationship terms also indicates the sex quite clearly where more than two are involved, thus:

"Kua puta ko Hakau mana teina ko Kikauae mana tuangane ko Mahuta" (There came forth Hakau and a younger of the same sex [named] Kikauae and her brother, Mahuta). Here *teina* shows that Kikauae is of the same sex as Hakau, but the sex is not indicated until the term *tuangane* is applied to Mahuta. The general term for birth is *hanau*, but in the above quotation *puta* (to come forth or emerge from within) is used as an alternative term. Some genealogists, when enumerating a large family of which the first born is a male, will recite all the males in order of birth and then the females in order of birth, though some of the females may have preceded some of the males.

The terms *tupuanga* and *katiri* are applied to the general genealogy, but a particular line of descent from a specified ancestor is termed *ara* (a path). Matakunui and his wife, Hakarere, had seven sons and three daughters. The ramifications of this large family have made Matakunui an important ancestor. A person who is descended from more than one member of that family has more than one path (*ara*) to Matakunui and in a recital runs them down in order of their seniority. In Table 3 the pedigree of a woman named Toreapo is given as an example of multiple descent from three brothers and one sister of the one biological family.

Table 3. Genealogy of Multiple Descent, Showing the Ara from One Family.



The reciter, a half-brother named Tangi-metua, after enumerating the family of Matakunui, commenced with the eldest son, Horauroa. He prefaced the recital with the explanation, "Te ara o Horauroa" (The path or line of Horauroa). The Tongarevans use the possessive, *o* (of), which in English would be expressed by "from." The husbands and wives of each marriage were given, but the second member is left out of the table except where they link up the lines of descent. Matakunui is the 5th generation from Mahuta, the colonizer, and Toreapo comes out in the 18th generation. Masuhua, the younger brother of Tukekemoana, was omitted in the first recital to be presented later. The reciter then took the *ara* of Tuatini, a younger brother of Horauroa. When he reached Akatapuria in the 14th generation the lines of Horauroa and Tuatini were joined by the marriage with Sauika, but he ran the line out to Toreapo as a matter of form. The *ara* of Ponakino, a younger brother to Tuatini, was then run down to Kauia in the 13th generation, who united the three lines of descent by marriage with Namuata of the 16th generation through the Horauroa-Tukekemoana line and the 15th generation through the Tuatini line. The *ara* of Mohotu, a sister of the three brothers dealt with, was carried down to Te Vae in the 14th generation, who married Moepo of the same generation in the Horauroa line. The union of the Mohotu and Horauroa lines took place before that with either Tuatini or Ponakino but was recited last as it was the junior line. The reciter then concluded with what he termed "te pae ki Tokerau" (the part toward Tokerau), in which the Horauroa line was traced down through his second son, Masuhua, who evidently went to Tokerau on the north side of the lagoon. Takaniniua, in the 12th generation through Masuhua, joined the two branches through marriage with Renaua of the 13th generation through Tukekemoana. The term used in working out a particular line is *hakasari* (to trace down), as "hakasari te ara ia Hakau" (trace down the path from Hakau).

A comparison of the number of generations through different lines is interesting. Thus, from Matakunui to Toreapo, inclusive, the number of generations through Horauroa-Tukekemoana is 14, Horauroa-Masuhua 13, Tuatini 13, Ponakino 11, and Mohotu 14. It is natural to expect a longer line through the senior members of a large family, as they reach the marriage age some years in advance of the youngest members of the same family. In the course of several lifetimes even a few years of difference in each generation may total one or more generations. Taking the common parent as zero for comparison with the senior Horauroa-Tukekemoana line, a minus difference of 1 generation occurs in the Horauroa-Masuhua line in 6 generations, and the same difference is found in the Tuatini line in 9 generations, whereas a minus difference of no less than 3 is found in the Ponakino line.

in 8 generations. The late start of junior members in some generations may, however, be made up by senior members in other generations, and the junior Mohotu line shows just as many generations as the first senior line. A presumably younger marrying age for females may also be a factor in increasing the number of generations over a given period, for in the three shorter lines the males exceed the females, and in the longer Horauroa-Tukekemoana and Mohotu lines the females exceed the males. In the period covered by an average of 18 generations from Mahuta to 1900 in one locality the differences in the numbers of generations of many lines are not great, but over longer periods taking in different islands they may create chronological problems.

The preservation by the whole population of family pedigrees connecting with historical ancestors different family lines of descent indicates clearly the importance attached to blood relationship. The social organization of the people was knitted by ties of blood which were memorized and transmitted from generation to generation. Though in some societies the relationship with a common ancestor may be fictitious, in Tongareva there is no reason to doubt that the pedigrees of the settlement period which have been preserved were authentic oral records of ancestors who lived, married, and bore their children on Tongareva.

BLOOD RELATIONSHIP TERMS

The independent groups of people who occupied the small islands and land districts on the large islands of Tongareva were separated by the channels between the islands or by artificial boundaries created between the divisions. Though all claimed blood kinship from three lines of ancestors united by subsequent marriages, such general kinship was relegated to the background. The independent groups found their cementing bonds in their common descent from the more recent ancestors who had established the secondary centers on the land which the group occupied.

Blood kinship as revealed by pedigrees is viewed from two important angles, that of direct lineal descent and that of collateral relationship. When a person uses the terms grandparents, parents, children, and grandchildren, he visualizes five genealogical strata of which he himself forms the middle stratum. The five generations are in direct lineal descent, and the family lines of the grandparents and parents are respectively two generations and one generation shorter, and the lines of his children and grandchildren are one and two generations longer than the line of the intermediate person.

A man applies to his collateral relations the same classificatory five strata into which they fall when measured from a common ancestor. Theoretically, it is immaterial how distant the common ancestor is. The counting of the

generations from the common ancestor by both parties will reveal the same number, two or one shorter, or two or one longer. The collateral relationship term is indicated by the difference in the count. In Table 4 the individual in the middle stratum of the lineal column is regarded as a first born male.

Table 4. Relationship Terms

GENEALOGICAL STRATUM	LINEAL	COLLATERAL	MARRIAGE
2 or more shorter	Tupuna (grandparents)	Tupuna	
1 shorter	Tahava (parent)		
	Tira (father)	Taueka (uncle)	Matua (father-in-law)
	Papa (mother)	Matua-wahine (aunt)	Matua (mother-in-law)
Same number	Tuakana (elder brother)	Teina (younger brother)	
	Tuangane (brother of sister)	Tuahine (sister of brother)	
1 longer	Tama (son)	To ate (nephew)	Hunonga (son-in-law)
	Tamaiti (son)		
	Tamahine (daughter)	Taukohera (niece)	Hunonga (daughter-in- law)
2 longer	Mokopuna (grandchil- dren)	Mokopuna	

Under the most favorable conditions five generations were about all that could have lived at one time, and the actual terms stop at the range of grandparents and grandchildren. The terms of *tupuna* and *mokopuna*, however, are extended in usage to include others beyond the range of two generations shorter and two longer. Thus, all ancestors are included under the general term of *tupuna* and great-grandchildren are termed *mokopuna*.

The Tongarevan terms are interesting in that the term *tahava* is used to include both parents and the special terms *tira* and *papa* are applied to father and mother. A distinction is thus made from the collateral terms of *taueka* (uncle) and *matua-wahine* (aunt) which apply to all collaterals on the father-mother stratum. The term *matua-wahine* is usually applied to mother in other areas, whereas the widespread term of *matua-tane*, which applies to both father and uncle, has been displaced by the special term *taueka*. The Tongarevans have thus departed from the usual Polynesian usage by using distinguishing terms for lineal and collateral descent in the father-mother stratum.

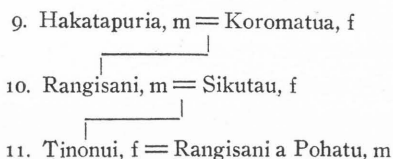
Marriage places the father-in-law and mother-in-law in the same stratum as the lineal father and mother, and the general term of *matua* as originally applied to parents and their collaterals is also applied to them, qualified no doubt by the sex designations of *tane* (male) and *wahine* (female). Thus, though the Tongarevans have distinguished between parents and collaterals, they have evidently lost the special "in-law" term of other areas as represented by *huangai* in Manihiki and *hungarwai* in New Zealand.

The terms, *tuakana* and *taina*, used to denote seniority of birth in the same sex, are widely spread, but the Tongarevans have the additional local term of *tauhatu*. Mr. J. A. Campbell writes me that the term is honorific (*ingoa ngateitei*), and that the word could be written *taau hatu* (your *hatu*) or *taku hatu* (my *hatu*). The honorific word is thus used to express the seniority embodying the *hatu*, or core of family rank. From its presence in Tongareva alone, it is evidently a local development meant to stress seniority in chiefly families. It was also used to indicate an uncle, but not an aunt, and hence it stressed the male seniority in patrilineal descent. The general seniority terms *tuakana* and *taina*, however, are used within the same sex by both males and females but cannot be applied to opposite sexes. The *taina* of a male is his younger brother and the *taina* of a female is her younger sister. The brother-sister relationship between opposite sexes is represented by the reciprocal terms, *tuangane* and *tuahine*. A person speaking of someone as a *tuangane* indicates that the speaker is a female referring to her brother; and so in speaking of a *tuahine*, the speaker is a male referring to his sister. Such terms refer solely to sex and there is no indication in the terms as to which is the older or younger. Both the sex terms and the seniority terms apply to collaterals on the same genealogical stratum. The seniority terms indicate seniority within collateral groups descended from common ancestors and help in the solving of problems connected with succession to rank and social status.

A system which includes the lineal and collateral descendants of the same generation under a common relationship term has been called "classificatory" to distinguish it from a "descriptive" system, the terminology of which is supposed to distinguish degrees of consanguinity more definitely. The Tongarevan classification is based on the numerical relationship two genealogical strata bear to each other through the link provided by a common ancestor. The present relationship of collaterals may depend on a past ancestor who may be remote from the five living generations, but their position with regard to each other is made clear by the preservation of pedigrees. The purpose of the pedigrees was to record collateral as well as lineal descent in order to preserve the structural framework of social organization.

The working of the system cannot be understood fully without considering the system of naming individuals. Each individual was given a personal name, corresponding with the European Christian name, by which he or she was addressed by all, including children. The individual had no surname in the European sense. The place of the surname was taken by the group appellation, whether derived from an eponymous ancestor or from the territory occupied, but the group name was used in referring to the group only. When two persons of the same name had to be distinguished

the name of the father with the particle *a* (of or belonging to) was used. This is often done in reciting pedigrees. Thus, in the ninth generation through Matakunui and his son Takatu the name of Rangisani appears.



Rangisani had a daughter, Tinonui, who married Rangisani. To avoid confusion the pedigree reciter says, "Tinonui married Rangisani of Pohatu." Rangisani, the father of Tinonui, has already been shown in the pedigree to be Rangisani of Hakatapuria, and any confusion as to whether or not Rangisani married his own daughter is avoided.

There is no need for the appellations of "father" and "mother" or for relationship terms to be used in addressing blood uncles and collateral uncles. The degree of consanguinity was not rendered unimportant by the use of common classificatory terms for collaterals of various degrees of removal through a common ancestor. The children were brought up to know who were their own parents and who were their paternal and maternal uncles and aunts. The same usage applied to collateral relations of more distant kinship, and the child learned the exact degree of consanguinity from parents and relatives, and through the family pedigree. Thus, degrees of consanguinity were clearly recognized and appreciated in spite of the common terms used. The use of personal names combined with the exact knowledge of degrees of consanguinity through the pedigrees supplied the descriptive element that students find lacking in the bare terms of a so-called "classificatory" system.

In Tongareva lineal descent from the group ancestor formed the tie that united families in the area occupied by the social group. The use of collateral terms indicated the relationships between the members of the group through that lineal descent. The greater the number of collaterals, the stronger the group. A descriptive system would have emphasized the degrees of remoteness in the distant relationships, whereas the collateral use of direct lineal terms such as were applied to grandparents, parents, sons and daughters, and grandchildren emphasized the blood tie and stressed the basic idea that in the community the individuals composing it should render close cooperation and mutual assistance. Distant relatives were thus drawn together by the use of relationship terms which exaggerated the closeness of blood kinship, and in thus stressing blood kinship the system served a purpose in the mechanism of the social structure.

An early theory concerning the classificatory system was that the use of one term to describe father, uncles, and collateral uncles implied that all persons so designated were putative fathers, and that society was originally promiscuous, with family life as a later development. In other words, it was thought that the collateral use of relationship terms preceded the lineal use. From a Polynesian point of view, however, the biological family with lineal relationship terms comes first. The use of lineal terms in a collateral sense followed the desire to keep families together in groups for mutual cooperation. The isolation of relationship terms from their background of home experience, personal naming, teaching of pedigrees, and function in their own society forms a study approach which has been responsible for the artificial arrangement of relationship terms into "classificatory" and "descriptive" systems. Though the Polynesian system has generally been termed classificatory, a number of the Tongarevan terms are descriptive, and the exceedingly wide classificatory usage of "cousin" in the English descriptive system is represented by a number of terms which indicate genealogical strata, seniority, and sex. The relationship term should be studied in its human background and the word "classificatory" abandoned lest it convey to students the errors made through its use.

To a people placing such emphasis on descent from a group ancestor it seems natural that a convenient form of group name should be the name of the common ancestor. Such a name unites the group under one heading and serves to distinguish it from other groups descended from different ancestors. The name of an eponymous ancestor, usually with the prefix *Ngati*, was used in New Zealand to distinguish the group of descendants. When the group became large it divided into smaller groups by taking the names of more recent ancestors. The smaller groups became subtribes under their own names, but they joined together for cooperative effort under the original group name, which became a tribal name. A somewhat similar system was employed in the Cook Islands. To the general system there were exceptions in both areas.

In Tongareva it was stated that in the very early period the different parties were named after their chiefs, such as *Ngati-Mahuta* and *Ngati-Taruia*. Later, however, when secondary centers were established on the various islets, the group was designated by the name of the land division it occupied, and the group naming, instead of being eponymous, became territorial. Thus, when a Mahuta was chief of Te Puka, Opaka, who had conquered Hakasusa, was chief of both Mangarongaro and Hakasusa. The two sections were not united in name. The adjustment of blood group and territory was alike in New Zealand and Tongareva, but the systems of naming were directly opposite.

THE BIOLOGICAL FAMILY

SEX CONCEPTS

The basis of Tongarevan society is the biological family, consisting of a husband, wife, and their children. The part played by the sexual act in the reproduction of children was well understood and the physiological paternity of the husband to his wife's children was not confounded with theories as to spirits and totems. The cessation of menstruation as an indication of conception and the period of gestation were recognized. The seminal fluid of the male was metaphorically regarded as seed which was planted within the female.

When the woman conceived, the human fruit was growing within her—expressed by the phrase, *kua hua te tamaiti i roto*. The fruit grew on the "land" within the woman, for when the child was born, it was accompanied by the afterbirth. The afterbirth, or placenta, was the portion of land upon which the child had grown, and it was quite rationally named the *henua* (the land). With this concept in mind, it is easy to understand that the subsequent planting of a coconut on the buried placenta is a natural continuation of the metaphorical idea into material reality. The child which grew on the hidden placental land reaches maturity on the external terrestrial land and the coconut tree also reaches maturity after being planted on the buried placenta. The coconut yields its fruit to the grown-up child and the circle is complete. The relationship of the boy to the tree is one of ownership combined with a certain amount of sentiment in that the tree marks the site where his *henua* was buried. There is nothing in the nature of a mystic bond between him and the tree that might be regarded as forming the basis of a plant totemism. Though elements in custom may resemble those of another culture, the psychological attitude toward the custom must be considered to be of extreme importance in deciding whether or not identity exists. This psychological attitude is entirely different from that which might exist in a totemistic society.

This digression is made to emphasize the full recognition by the father and mother that their relationship to their offspring is a direct material one, not arising from outside spiritual or mythical sources. It is realized that the child is of their bone and their blood and that he inherits the blood of previous fathers and mothers through his own father and mother. The family is, thus, bilateral.

Malinowski (17) has clearly demonstrated the position of the father in the matrilineal social structure of the Trobriands, among whom the physiological function of the male seminal fluid is not only not known but

actively denied, impregnation being attributed to the entrance of a spirit child. The physiological father does not exist. The husband is only a social father to his wife's children, and he exercises a sphere of influence which is limited to those acts which the male members of his wife's family cannot carry out by reason of the brother-sister tapu. The father is eliminated from blood relationship with his own child, and blood relationship is, consequently unilateral through the mother's family. As the mother, by reason of her sex, is unable to carry out certain duties, these masculine duties and the exercise of male authority devolve upon her brother, who represents the closest male blood of her child. Unilateral blood relationship, which largely influences the structure of Melanesian society, if it resembles in detail that of the Trobriands, is based on the denial of physiological fatherhood. Such a psychological attitude probably encourages the introduction of mythical animal ancestors into their beliefs and directs the organization of society along certain lines. On the other hand, the full recognition of physiological fatherhood in Polynesia forms the basis of the bilateral family, and it creates a totally different psychological attitude toward the part to be played by blood relationship in the social structure.

BIRTH

Pregnant women were exercised by swimming in the sea so as to make the child lie right. Labor pains have been known to come on while a woman has been exercising in the water, and the child has been born in the water. In a case of delayed birth the woman was taken to the lagoon and made to swim to bring on labor. She was then confined by the water side. Before labor set in the woman was given a large draught of *roro* to act as a purgative. The Tongarevans were acquainted with the sound principle of clearing out the lower bowel before labor. The position in which women were confined was the usual sitting position, with a rope tied to a rafter above to assist the patient in bearing down. When pains came on a binder was tied around the body above the fundus of the womb to prevent fainting (*purehua*). The cord was tied with the twisted prepared bark of a creeper (*vavai*), never with sennit fiber. The location for tying was some little distance from the abdomen. The afterbirth was buried and a coconut planted above it to be used by the child when they both came to maturity.

The dried-up piece of cord, on separating from the abdomen, was buried, if the parents desired the child to become a landowner. It was thrown into the sea from the outer edge of the reef if the parents desired him to become a skilled fisherman (*tautai*). The parent who desired his son to remain at home wrapped up the dried cord and kept it in the house.

PUBERTY CUSTOMS

Puberty was judged, not by age entirely, but by the growth and quantity of the pubic hair. Up to this period the child usually went entirely naked, as his sex organs were regarded merely as part of his anatomical topography, so far not associated with any ideas of sexual function. At the stage of puberty, as evidenced by the pubic hair, the boy had to be instructed in sexual matters in a practical manner. The father appointed a woman of mature age to act as instructress and perform the ceremony of pressing back the foreskin of the penis. The purpose of this manipulation was "to snap the tie," *kia motu te sele*. The snapping of the tie was not the rupturing of the frenum as the wording might imply but the stretching of the opening of the foreskin so that it might pass over the glans. For the custom the instructress and the victim retired to a hut where the coconut leaf wall sheets were lowered and only themselves were present. The ceremony of manipulation and instruction ended in coitus, which was regarded dispassionately as the practical culmination of the ceremony. The boy now knew from practical experience the use of the male organ from the viewpoint of sex. With the advent of knowledge, the sex organ could no longer be exposed and from then on the boy wore the *maro* loin cloth as a garment of concealment. He had eaten of the tree of knowledge and could no longer go naked. Beyond this ceremony, there seems to have been no other custom connected with the period of puberty. Though my informants did not mention it, probably a feast was given by the parents after the ceremony.

Girls also went about naked until the growth of the pubic hair indicated that puberty had been attained and that the sex organs could function. The parents prepared a feast and selected a man of another family to perform the required ceremony. The custom was to puncture the hymen digitally. The operation took place in a closed house and was not made public like the virginity test before marriage observed by the Samoans. The object was stated to be *ei wahi i te maki wahine* (to clear the way for menstruation). If the hymen was found to be already ruptured, presumably by previous sexual connection, the parents of the girl were shamed, and the festive celebrations to mark the occasion were a failure.

After the ceremonial rupturing of the hymen the girl had to wear the *titi* skirt as a garment of concealment. The ceremony was thus called *hakatiti* (to cause to wear the *titi* skirt).

The ceremonial rupturing of the hymen was a puberty custom which might precede marriage by a considerable amount of time. It was only a surgical operation, in accordance with the prevalent medical opinion, to remove what was considered an obstruction of the physiological flow of the

menses. It differed from the Samoan custom, which was confined to the special class of village *taupou* and was carried out as part of the marriage ceremony for the purely social reason of adding prestige to the girl's parents.

The physiological attitude toward the custom must also be clearly distinguished from the attitude of the people of the Trobriands described by Malinowski (17, p. 155) that the hymen must be ruptured in order that the spirit child may enter and the woman conceive. Malinowski further points out that, owing to early sexual indulgences, there are no virgins at puberty, so that the story has no application except in myths. The *hakatiti* ceremony as a puberty rite is clear evidence that games between Tongarevan boys and girls did not all develop into the full sexual form that they did in the Trobriands, and when they did it was without the approval of the parents, who were shamed when the puberty ceremony was found to have been anticipated.

After the puberty ceremony, boys entered upon a period of sex activity upon which, evidently, there were no restrictions so long as they avoided those who were prohibited by the degrees of consanguinity or marriage. Girls, by the corresponding puberty ceremony, were also admitted to free sexual life. The girl could have love affairs with whom she fancied with the exceptions imposed by consanguinity or marriage. Sexual appetites could be satisfied without social stigma that would affect her prospects of marriage. Though freedom was not restricted in principle, Tongarevan girls are said to be much more reserved in granting favors than others of their race. It was regarded as immodest for a girl to make advances or to go to the house of a lover even upon his solicitation. The male must seek the girl at her house, and her self-respect having been thus considered, she could cohabit with her lover without losing her social status. Parents, however, never willingly agreed to the free intercourse of their daughters, and love affairs were conducted with a certain amount of reserve and secrecy. The custom of segregating the sexes, which exists in some cultures, did not exist in Tongareva. Young people slept in the houses of their parents, who thus exercised some direct personal control over their actions. However, it may be said that young people had no general sex restrictions until they were married.

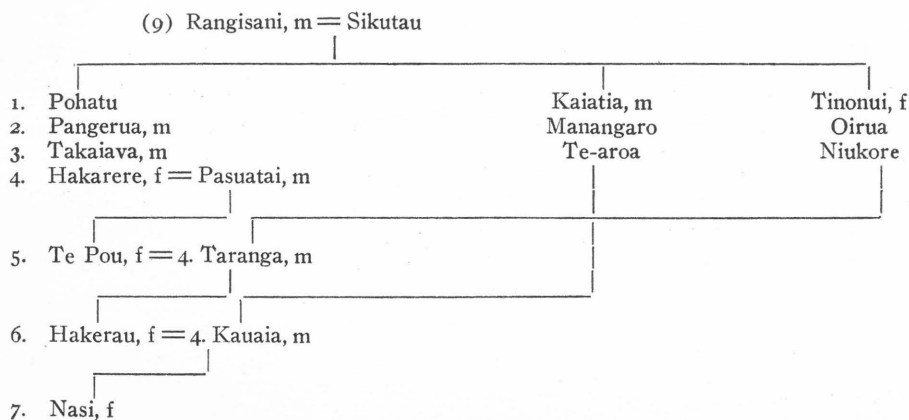
Theoretically, the freedom of unmarried people has been curtailed by missionary teaching. Public opinion has been educated to regard the sexual intercourse of unmarried people, whether adolescent or adult, as wrong and an offense against morals. Delinquents are tried and fined in court. The puberty customs are not carried out, and children wear clothes to cover their nakedness. The life of the adolescent is now one perpetual intrigue to avoid deacons of the church, policemen, and parents, to bring love affairs to what is still considered the only successful accomplishment.

MARRIAGE

The primary object of marriage, from the Tongarevan point of view, was the procreation of children to perpetuate the family. Young people had their sexual experiences dating from instruction in the mysteries of sex, and marriage was not the only means of consummating sexual love. Marriages, especially among people of higher status, were arranged as alliances between two lines of descent by the two families concerned, for pedigrees were jealously preserved, and the descent of the contracting parties was well known. Though occasional love affairs may have been protracted on into permanent unions, an attitude of acceptance of matrimonial arrangements had become ingrained by culture. Occasionally, however, a couple managed to make their own arrangements in spite of parental opposition. A few years ago a couple, whose union was resisted by the parents, eloped in a boat and, after setting a course for Tahiti, lost their sail and oars in a storm and finally drew up in American Samoa.

Unsuitability was usually strongly opposed, but the withholding of consent from a couple contemplating marriage was the prerogative of the family and not the prohibition of a law with severe punishments established by society. With senior families the question of rank and property in land influenced a decision. With the lower classes social and property restrictions disappeared to some extent, and marriages were consequently more readily realized by the individuals without family opposition. No prohibitions existed as to various branches of lineal descent; alliances have occurred between the main lines of Taruia, Purua, and both wives of Mahuta. (See p. 18.) Exogamy, involving compulsory marriage into another group, did not exist. The only restriction was that of consanguinity which, according to Lamont (15, p. 136), extended as far as second cousins. Unfortunately, I had no time to test the exact degree of prohibited relationship in the family pedigrees, but I take it that second cousins are in the third generation from the same grandparents. Most alliances between different lines of descent shown in the pedigrees are a considerable distance from the last common pair of parents. Thus, as shown in Table 3 (p. 24), the first alliance is 7 and 6 generations from the common parents, and the others are 9 and 9, 10 and 9, and 11 and 8 respectively. While these do not show the closeness of consanguinity allowed in marriage, they indicate that there was a strong tendency to let some time elapse before kindred lines were allied by marriage. Table 5 better illustrates the prohibited degrees of consanguinity.

Table 5. Genealogy Showing Prohibited Degrees of Consanguinity



Rangisani and Sikutau are the common parents of three lines of descent which intermarry in the pedigree of Nasi, Rangisani being the ninth generation on a Mahuta line. The first generation from Rangisani consists of the two brothers, Pohatu and Kaiatia, with their sister, Tinonui. Takaiava, Te-aroa, and Niukore, of the third generation, are second cousins to each other and cannot marry. In the fourth generation, consisting of Hakarere, Taranga, and Kauaia, the marriage prohibition ceases to function, although marriage may be impossible, because the persons are not contemporaries, or have an unsuitable disparity in age. Hakarere of the first line was evidently much older than Taranga and Kauaia of the same generation as herself, and she married Pasuatai of another family. Their daughter, Te Pou, of the fifth generation through Pohatu evidently belonged to an age that more nearly approached that of Taranga of the fourth generation through Tinonui, and a suitable alliance was therefore made by marriage. Their daughter, Hakerau, now in the sixth generation through Pohatu and the fifth generation through Tinonui was, in turn, of a suitable age to mate with Kauaia of the fourth generation through Kaiatia, and the marriage was accordingly made. The offspring of the last marriage united the three lines, but, owing to the different time spacing of the same generations in each line, Nasi counts seven generations through Pohatu, six through Tinonui, and five through Kaiatia. In Tongarevan collateral terminology, Te Pou married her *matua* and Hakarere married her *tupuna*. Translating this into the unsatisfactory English terminology so often used, Te Pou married her "father" and Hakarere her "grandfather," which is absurd. If we used the terms "collateral uncle" and "collateral granduncle" we would have the exact meaning that the words *matua* and *tupuna* convey to the Tongarevan in this particular instance.

After a marriage had been arranged by the two families concerned, the bride was brought to the groom's village by her people. A meal was partaken of and a great quantity of food consumed when it was available. Probably speeches were made, and the marriage might be recognized without any special ritual.

Lamont, who had three wives during his stay on Tongareva, furnishes some interesting information. His first wife, Haka Moe Kakara (15, p. 257), was brought from another island by his adoptive parents, without any preliminary warning to the prospective groom. On returning from bathing he saw her for the first time, sitting in front of his house. She was about 16 years of age and fled on his appearance. Lamont was then informed that she was his wife. No special feast is mentioned, and he accepted her with some hesitation. The union did not turn out to be a happy one, and the girl continued to be afraid of him. Before the second marriage he cured a young girl named Chera Puna (Tere Puna) of sickness, and later the girl's mother "presented her to me as my affianced wife, to be formally married when she was of proper age" (15, p. 265). Probably Lamont's stay was too short for the formal marriage to take place, but he speaks of her as his second wife. More details are given of his third marriage with Haka Puta. This girl belonged to Motu-nono near Tautua, and during Lamont's stay on the island they had become friendly. On his announcement of his departure for Motu-unga, the girl threw her arms around him and begged him to stay or at least to take her with him. To soothe her, he told her he would make her his wife and take her with him. Hakaputa expressed her delight by vigorously pressing her nose against his, and the people present announced the news to the others, who were attracted to the scene. The kith and kin of the bride assembled for a meal which Lamont says was "strictly an ordinary meal, the same as on any other day." However, as Lamont was being treated as a distinguished visitor, he had already been feeding on the best that could be provided, and so probably could see no difference. The meal might not differ as to the menu, but the special occasion makes it important. The bride, according to custom, remained in retirement. Lamont (15, p. 297) describes the event.

After the morning meal, the different groups assembled round the chief's tent [hut], where the groom and his friends were already seated. The men formed in a row for the *pehu*, and the women, before sitting down, arranged their *tichès* [*titi*], that they might not crumple them, as they prepared to chant. The bride, meanwhile, had not appeared; and it was not till she had been angrily called, that from a closed tent [hut] some young girls appeared with what seemed to be a bundle of mats in the centre. This, however, was really the young bride, who, coming forth, ran towards the tent [hut] where I was seated, and then darting back was again enveloped in the mats, and withdrawn to the remotest corner of the house. The bride does not entirely disrobe herself of the matting for several days after the marriage, when she appears with the *titchè* [*titi*], which she

wears constantly for the remainder of her life. Whilst the young lady hides her maiden blushes under the matting, and the gentleman sits demurely, but more confidently in front of the hut, the ceremony of the *pehu* commences, accompanied by rather an extra amount of crying, scratching, and bleeding, making a most melancholy affair of the happy event. The bride is then handed over to the oldest relatives or friends present for some further ceremonies; which over, the happy couple retire to their new abode.

Lamont's account represents very well three forms of the marriage arrangement. In the first marriage the selection and arrangement were made by the groom's family without consulting the groom. In the second, the betrothal was made by Tere Puna's mother or family, the girl being immature but the marriage suitable. The third marriage was the result of a love affair, and was accepted by the bride's family as a suitable marriage.

The wrapping of mats around the bride is a distinctive feature associated with the marriage ceremony. Once when, because of a quarrel, Lamont left his first wife behind him at Motu-unga, the Motu-ungan people brought her to him at Omoka with mats wrapped around her. Lamont (15, p. 261) thought the mat wrapping was a sign of mourning, but it was more likely a reminder that the marriage tie still held good.

The significance of the *titi* skirt must be remarked upon. Lamont regarded it as being worn only after marriage. Thus of his first wife he said,

There was one thing that puzzled me about her; she had evidently been married before, for she wore the *tichè* [*titi*], and was certainly a very youthful widow, not more than sixteen. I was informed that she had only just been married, and, disliking her husband, had never lived with him.

Knowing the obedience paid to nuptial arrangements, it is hard to believe that a young girl would refuse to live with her husband so soon after marriage. Lamont probably misunderstood his informants and has confounded with marriage the custom of rupturing the hymen at puberty and the subsequent wearing of the *titi*. This first wife evidently had gone through the *hakatiti* ceremony and was entitled to wear the *titi* without actually having been married. Lamont's later description of his third wife wearing the *titi* only after the marriage ceremony shows that, though she had probably reached puberty, the *hakatiti* ceremony had not been performed. This is supported by his statement that after the *pehu* ceremony of crying and cutting the flesh, the bride was handed over to the oldest relatives or friends present for some further ceremonies. It was after the further ceremonies that the married couple retired to their new abode. Lamont does not specify what the further ceremonies were, but there is little doubt that it was the *hakatiti* which entitled the woman to wear the *titi*, as the marriageable age, and not the marriage itself, demanded. In the marriage with Haka Puta the wedding was sudden and unexpected so the *hakatiti* ceremony had to be

performed on the wedding day before the bride could be handed over to her husband. It merely coincided with the wedding period but was not an integral part of the marriage ceremony itself.

The family pedigrees show that monogamy prevailed, but polygamy, in the form of polygyny, was practised by some of the leading chiefs. Not all multiple wives shown in the pedigrees are polygynous as subsequent wives have been taken after death or divorce from previous ones. On the other hand, the fact that only one wife appears in a pedigree does not always denote monogamy, for the name of a barren wife may in time be omitted. Two of the chiefs mentioned by Lamont, Opaka, *ariki* of Hakasusa, and Mahuta-nui of Te Puka, had more than one wife.

In the polygynous marriages all the wives lived with the husband, but usually in different establishments. Lamont (15, p. 216) mentions "Opaka's house, or rather houses, in Haka Shusha, over each of which one of his wives presided." The houses were built in relation to a central gravelled space and accommodated the multiple household of the biological family of Opaka. Mahutanui had three wives, but they lived in separate houses some distance apart on Mahuta's land.

The term for wife is *wahine*, which is also the general term for woman. No confusion exists in the native mind as to the meaning of the term, as the local knowledge of the relationship in the community and the context of speech clearly indicate what is meant. The genealogical term used for marriage is *noho* (to stay with). The idea conveyed by *noho* is that the staying together is of some duration, as in marriage, and it does not apply to the temporary association of lovers.

THE HOUSEHOLD

In Tongareva the custom is for the wife to take up her residence in her husband's house. A young husband who has hitherto been living in his father's household may continue to live there with his wife in one of the spare huts, or they may share the hut with others. He may build a new hut in the immediate vicinity and thus add to the extent of his father's household. When children are born or when crowding takes place the husband may build a separate establishment on land indicated or allocated to him by his father. The household is thus patrilocal.

If the married couple remains with the husband's father, the birth of children places three generations in the one household. It often happens that the father's aged parents may live with him, the household thus consisting of four generations. If the first family is large, the first sons to marry usually break away to relieve the overcrowding and establish their own households on

paternal land. The daughters, as they marry, go off to their husbands' houses, and the junior members of the family are left at home. There is thus a constant ebb and flow of succeeding generations. Grandparents die as great-grandchildren are born, and the household, though based on a single biological family, may consist of members of two, three, or even four generations.

The complex household with its sleeping huts, cooking houses, and open gravelled space is yet a single domestic unit, united by close blood relationship through the male line, the members of the household working together in harmony in supplying the small family group with food. In a household of four generations the old grandparents bask in the sun and do such light tasks as are within their scope. They look after the grandchildren. The aged grandfather relinquishes the household rule and the direction of active operations to his son. The son of the second generation has become master of the household and his wife assumes control of the domestic management. The grandson of the third generation who has elected to remain with his father's household takes an active part in procuring food supplies and in doing the heavy work of the household, but he defers to the authority of his father. The great-grandchildren of the fourth generation assist in the work of the household, carrying out such tasks as are assigned to them by either parents or grandparents. Four generations in a household is probably the extreme.

In a bilateral family the wife who comes of a family rich in food lands retains her rights to a share in her father's lands. She and her husband may visit her land from time to time to obtain the crop from her coconut trees. Her rights as an heiress are not questioned. If her husband comes of a poorer family, or if his share in his paternal estate is small, the couple may elect to settle on the wife's land, and the household becomes matrilocal. Though the husband is an outsider, perhaps but distantly connected with his wife's family by blood, he is usually welcomed by his wife's father, as a male addition to the family and another warrior to aid in resisting attack. The husband thus becomes an integral part of his wife's family division.

Through matrilocal residence the children may drop their active connection with their father's kin and become incorporated and naturally absorbed into their mother's family and the organization to which it belongs. Theoretically, however, the matrilocal household only survived for one generation. Of the family born to it, the daughters married and went to their husbands, and the sons established their households on their mother's land. These households may be considered transitional between matrilocal and patrilocal households for, though the land was the mother's during her lifetime, upon her death the respective shares passed to her sons who were in residence.

In the next generation the sons inherited from their fathers and the households again became strictly patrilocal. In the first matrilocal family a younger son might return to his father's people and be brought up by them by adoption. He thus passed out of the district like his sisters.

Although patrilineal descent and patrilocal residence form the background of the social structure, matrilineal descent links up family pedigrees which might otherwise spread out, and it carries practical advantages. Every fourth generation women available for marriage within the district, being outside the prohibited degree of consanguinity, can marry within the district to strengthen the ties of blood kinship. Also, in a biological family which has daughters and no sons the parents may insist on the daughter's husband coming to live on their land in order that the grandchildren may inherit the land.

Adoptions used to be common and a few led to complications, although most adoptions were made within the branches of the same family, so that the adopted child was really of blood kin to the adoptive parents. People with no issue of their own were naturally anxious to adopt children, whereas parents with large families could not well refuse to give up some of theirs. Parents were also influenced to promote the welfare of their children by consenting to adoption by people of rank or wealth in food lands. Also, natural love of children probably led to adoptions by people who already had children of their own. Adoptions were also particularly desired by older people whose own children had left them after marriage, and who desired sons or daughters to assist them in securing food supplies and to help in the work of carrying in coconuts, of fishing, lighting fires, and cooking food.

Complications concerning succession to the land of adopting parents have arisen. Some parents, neglected in old age by their own children, have, in revenge, left their lands entirely to adopted children. I purposely started a heated argument in Tautua by asking if it were right for adopted children to succeed to land and thus disinherit the true children. Part of the assembly maintained that land could only go to the nearest of blood. One old man, however, was vehement in asserting that the adopted child should take precedence. Pointing to his open mouth he said:

To whom should I leave my land but to him who fills that? If my own children leave me when they grow up and then do not send me food to fill my empty stomach, should I consider them? Should I not consider my adopted child, who has cared for me in my old age and fed me when my own children failed to do so?

With a grunt, he again pointed to his empty mouth. I concluded that the practical filling of his stomach with food overcame all theoretical considerations as to blood kinship. The adopted child is thus regarded as a real son or daughter and may be given property by the adoptive parents in preference to real children who have been guilty of neglect.

In adopting by native custom no special formula was followed. The adopting parents asked for or took a child and brought it up in their own home. The desire to adopt children was so prevalent that after European contact illegitimate, white, or partly white children from other districts were adopted, to the detriment of the real kin. To prevent abuse of the custom the Cook Islands Act now demands that proposed adoptions shall be properly investigated and registered before they become legal, that the child shall be native or the descendant of a native and under the age of 15 years, that the adopting parent shall apply for the adoption and shall be a fit person to have custody of the child, and that the natural parents shall consent. The adoption may be annulled by the Court on the application of the adopting parent or child.

A social or honorary adoption is described by Lamont, who states that all the members of the crew of the wrecked Chatham were adopted by different families. The people took the strangers in as permanent guests and gave them the same rights to their food lands as their own families possessed. This hospitality could be expressed only by adoption. In thus adopting them into the family the same relationship terms were used as if they were true blood kin. Thus O Pai Tangata became Lamont's father (*matua*); his father's wife, "Moshishe," became his mother, or "*matua oahine*" (*matua wahine*); and their sons, his brothers. After descriptions of a ceremony conducted in a marae on the second day after the wreck and the subsequent "shukai" ceremony outside the marae, Lamont (15, p. 125) states that he learned that the ceremony through which they had passed was a form of adoption, "each of us becoming from that time forth the chosen child of some leading man in the place; standing in the same position to all his relations as his own children, and even enjoying some additional privileges."

The ceremony, as I see it, was not part of the ordinary procedure of adoption. The chiefs had already selected them as members of their household on the preceding day, and the simple mechanism of adoption ended with that. The ceremony on the marae and the subsequent wailing constituted a formal reception into the Tongarevan community in accordance with established custom. The marae ceremony removed any tapu and foreign influence that accompanied them as strangers and brought them into accord with the religious ritual and spiritual influences that prevailed in the country. The weeping, chanting, and dancing which followed, and which the women shared, was their formal reception and welcome into the community, of which they were then a part. Though their position was thus established in the community, neither ceremony can be regarded as an integral part of the simple mechanism of adoption. In this adult adoption, as Lamont remarks, they stood in the same position to their adoptive parents

and their relations as if they were their own children, and they naturally came under the laws applying to the prohibited degrees of consanguinity in marriage.

Not only is marriage prohibited in this relationship, but sexual intercourse and advances of an amorous nature are also prohibited as a matter of course. Thus Lamont found that, though he could press noses with his aunts, sisters, and cousins, any attempt at a European kiss was resisted, the person flying from him in horror and calling out her relationship as the bar to such action. The attitude is quite clear. The pressing of noses together was the orthodox social greeting of the culture, but immediately the lips came into play it was regarded as an erotic approach to forbidden sexual intercourse. Chiefs and old women adopted Lamont on the other islands he visited, and he increased his circle of relations. His attempts to express his friendship with his close female relations by means of the European kiss were always received with embarrassment and repulsed.

The following avoidance customs were recorded by Lamont (15, p. 136), but I did not check up on them.

In these relationships they have some strange observances. A mother can kiss her son, but he must not embrace his mother; a sister and brother on meeting after a long absence, cannot fondly rush into each others arms, but must sit down facing each other, and nod their heads, one to one side, the other to the opposite; and the adopted child may not touch the food the parents have to eat, as in that case they dare not use it.

The name for the household group is not clear. In New Zealand the mechanism is definite. The ancestor who linked all the biological families together as indicated by their pedigrees was treated as an eponymous ancestor, and his name, with a plural prefix signifying "the descendants of," was used as a term to include the family group that had originated from him. The name became the distinctive proper name of the family group, but such a group was designated as a *hapu* (pregnant) or *whanau* (birth). These terms cryptically denote that all people belonging to such a group are descended from one pregnancy and one birth. In Tongareva, although the term *hanau*, which corresponds to the New Zealand *whanau*, is used in the genealogical recitals to denote birth, it is not used as a classificatory term to denote a group derived from one ancestral family. However, the same principle of attaching importance to descent from a common ancestor as to locality and grouping applies, and it implies cooperation in public functions and in defense and attack.

RANK AND TITLE

The office of chief was recognized before the settlement of Tongareva. Both Mahuta-nui and Taruia were chiefs, and it is evident that Purua was

the chief of the earlier settlers. To understand the system of chieftaincy involves an understanding of *tuakana* and *taina*, terms that denote seniority in order of birth in the same family or in the same genealogical stratum from a common ancestor. (See p. 28.) The eldest son in a family is *tuakana* to all his brothers and they are all *taina* to him. The second son is *taina* to the first son but *tuakana* to all his younger brothers. Thus, any member of the family is *taina* to those older than himself and *tuakana* to those who are younger. The youngest son is *taina* to all his brothers. It follows that all the members of a family by the first wife are *tuakana* to families by succeeding wives. Seniority extends collaterally. The sons of an elder brother are *tuakana* to the sons of a younger brother or younger sister. The sons of an elder sister are senior to the sons of a younger brother, but as the females went to live with their husbands, seniority on the female line did not affect the order in a patrilocal family. Collateral relationship more than once removed from the common ancestor also observes the order of seniority indicated.

It is natural in any family for the elder children to assume a physical superiority over those who follow after. They are also naturally entrusted with tasks of responsibility according to their years, and authority develops chronologically. The authority developed within the family in childhood and youth was maintained throughout adult life. Children were taught to pay respect to their elders and seniors. If children too early assumed the attitude and actions of those older than themselves, they were looked upon as precocious and were admonished. Precocity, defined as "a young person making himself big," was embodied in no less than three words, *hakasina*, *hakakasipaka*, and *hakakaumatua*. The child guilty of precocious conduct was reprimanded in such a phrase as "*Haere atu te tamaiti hakakasipaka*" (Go away, the precocious child). The three words used to denote precocity have all the causative prefix, *haka*, which signifies action. In *hakasina*, *sina* means grey or white and applies to hair. The whole word thus refers to action that would make the person appear like a man with grey hair. In the Maori dialect *kaumatua* means an old man or an adult. In Tongareva the Maori meaning is preserved in the form of *hakakaumatua*, which means to act in a manner beyond one's years. In the Tongarevan family the wrongful assumption of seniority was regarded as subversive to family discipline. The social structure was intimately linked with the recognition of lineal seniority. A *pese*, or song, arising out of a quarrel between two brothers illustrates the mental attitude toward younger people. The quarrel arose through an argument as to the nights when certain fish ran through the channels. The younger brother, though right, was struck by his senior. The aggrieved one went to his mother and recited the following:

Hakakaumatua—he ure kura.
Sawasawa te maro—he tamariki.
Toku mata ka tukia,
Toku rehu ka to,
He reka.

To act like an adult—an immature penis.
To dirty the *maro* with faeces—a child.
My face has been beaten,
My strength has declined,
It is finished.

The signs of immaturity are here enumerated as the reasons for being beaten. The rights of seniority as recognized by public opinion lead to the quoting of the verse.

An elder brother is referred to as *toro ahuru*, which carries the idea of the main vine, whereas a younger brother is termed *hono tangata*, which means the link with the people. The terms convey the idea that the elder brother is the direct lineal link or main vine in the family pedigree, whereas the younger brother is the collateral link with the people. Thus the elder brother inherits the chieftaincy of the line, but the families of the younger brothers provide the human group to support the chiefs.

The principle of seniority was so strongly developed in childhood and maintained through adult life that the leader of the family in succession to the father was the eldest son, seniority was maintained through the collaterals, and the successive eldest sons of eldest sons were elevated naturally to the positions of group leadership. Every district occupied by a number of families had its senior family which automatically supplied the district chief through primogeniture. When all the districts in an island or division of a large island combined for mutual protection or aggression one chief, by reason of the common descent from one ancestral family, was senior to all the others. His pedigree showed that his descent was from the senior family in each generation, and he was thus senior to all the other chiefs whose families had branched off from the main stem (*toro ahuru*). The other chiefs, who were descended from younger brothers who had moved off to other districts, were thus in the relative position of younger brothers. The junior chiefs were *hono tangata*, or the links which bound the smaller group of families to the main stem and enabled the whole island or divisional group of people to act together under the senior chief of the largest group so formed.

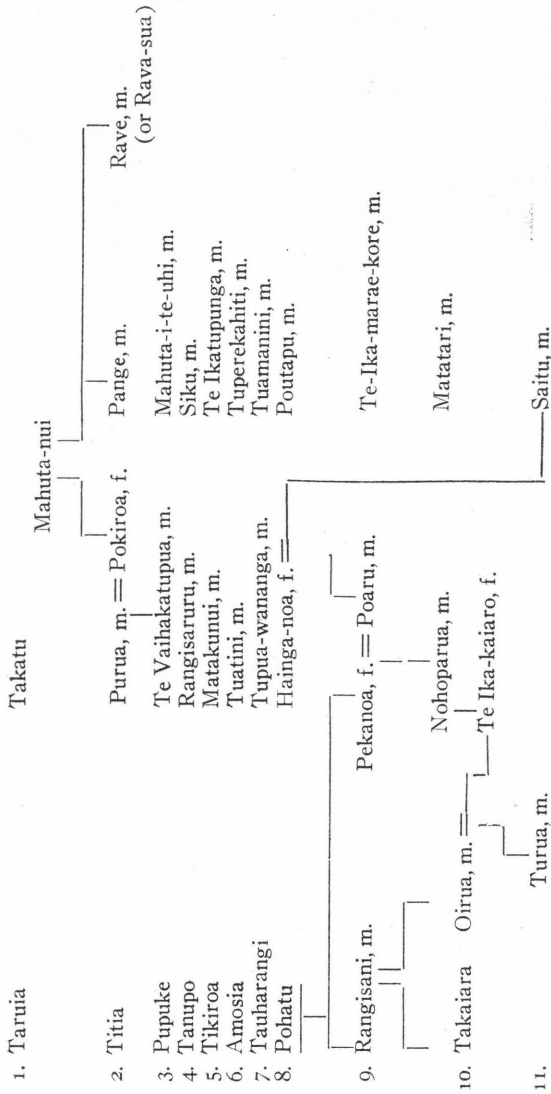
In the settlement of the various islands and island divisions the territorial groups were derived from families which had hived off from the main lines at various periods, and, though all were related through common ancestors, certain territorial groups with pedigree links more recent showed closer relationships than others. In two or more related territories the senior family was known, and the senior chief of one of the linked territories was also, by descent, the senior chief of the combined territories. As the recognition of seniority prevailed, the status of the senior chief was increased not only by the number of collateral families in his own territory, but also by his position of seniority with regard to other territories. Seniority through birth had

thus a wide-reaching influence. Absolute seniority within a group was expressed by the term *ariki*. In New Zealand any member of a family may refer to the senior member of the family as his *ariki*, and there seems little doubt that the term was originally used to denote absolute seniority within the family. During the growth of Polynesian society the use of the term widened out to apply to chiefs of larger groups and the related groups which constituted a tribe. The position of *ariki* was assured by the recognition of blood seniority, and the term came to be used as a title of chieftaincy. Though the title descended by inheritance on the senior male line, breaks occurred through lack of male heirs, when the title went to a junior. Incapable leadership was also a factor in interrupting direct succession. Traditional narrators give evidence that this system of leadership was well developed at the period of the later colonizing expeditions. The chiefs of voyaging canoes may or may not have been *ariki* in the islands from which they came, but when they settled in a new island they assumed that position and were regarded as such by their crews and by succeeding generations.

When Mahuta-nui arrived at Tongareva in the Waimea canoe he was asked by the local inhabitants who were the *ariki* in his canoe. He replied: "*Pange e Rave.*" (Pange and Rave.) These were his two sons by his second wife, Hotio, who was daughter of Tu-koropanga, an *ariki* of Tahiti.

Tu-koropanga of Tahiti named his sons as *ariki*, for he was of higher rank than Mahuta, whose sons had *ariki* blood in their veins through their mother. This is an example of the respect paid to matrilineal descent when it carried high rank. At the time of Mahuta's arrival he had no large group of people to support two *ariki*, but he saw into the future and imposed the already established *ariki* system upon the local population. The *ariki* system must have been known to the people already in occupation, or they would not have questioned Mahuta about the *ariki* in his canoe. The *ariki* system must have been known also to the people that had left Taruia, for according to an Aitutaki tradition, Taruia himself was *ariki* of Aitutaki, and was deposed by trickery and sailed to Tongareva. It is clear that the principle of the *ariki* system was in use at the time of settlement by Mahuta-nui. Tupou Isaia says there were two *ariki* on Tongareva about eight or nine generations from Mahuta, namely, Pohatu and Poaru, who were contemporaries. Table 6 shows their descent.

Table 6. Descent of the ariki, Pohatu and Poaru



The *ariki*, Pohatu, is shown as the eighth generation on the direct male line from the voyager, Taruia. It is thus evident that an *ariki* title which was independent of the *ariki* titles established by Mahuta was created by the Taruia stock. The Pange title mentioned by Mahuta descended by a direct male line to Poaru, the son of Saitu. The genealogies collected did not give any line from Rave, the younger brother of Pange. The use of the term *ariki* as applied to Rave by Mahuta may have been a figure of speech which did not materialize into a hereditary title through lack of issue. If there was an *ariki* title on the Takatu-Purua line, it was evidently merged in the Poaru title through a female break in the male line. The union of the Takatu line with that of Mahuta's first family by the marriage of Purua and Pokiroa is again shown. From Purua there is a direct line of males to Tupuawananga in the seventh generation. The male line is then broken by Hainga-noa in the eighth generation. Hainga-noa married Saitu in the direct male line from Pange. Their offspring was Poaru, a male, who therefore succeeded to the *ariki* title from Pange on his father's side and to any rank that may have descended from Purua through his mother. The pedigrees do not reveal any brother of Hainga-noa, so the Purua title, if there was one, was inherited through the female, and, by being vested in Poaru, the two titles became merged into one. Table 6 shows how marriages were arranged between families of chiefs. The *ariki*, Pohatu, had a son, Rangisani, and a daughter, Pekanoa. The daughter was married to the *ariki*, Poaru, joining two *ariki* families, but as a son had been born to Pohatu there was no question of the two titles being merged. An interesting item is the marriage of a son of Rangisani to the granddaughter of his sister, Pekanoa, which brings the union within the theoretical prohibited degrees of consanguinity.

Later, when Lamont was in Tongareva, the increasing population had evidently created other *ariki* positions, for he describes Mahuta-nui as "iriki" (*ariki*) of Te Puka, and Opaka as occupying a similar position over Manga-rongaro and Hakasusa. He also speaks of an *ariki* of the small island of Atutahi and remarks that this *ariki* displayed more power over his people than any other chief he had seen. The increase in the number of individuals composing the various territorial tribes had thus led to a rise in the status of the senior family in the individual tribes.

Mention has been made of the probability that the *ariki*, Poaru, in the ninth generation, combined two *ariki* titles through lack of male issue on one of the lines. With the later development of larger independent groups of people constantly at war with one another, the combining of two titles was untenable. The *ariki* had to live with one of the groups, and his claims over the other group could not be enforced under the system which prevailed. When direct male issue was lacking the families concerned met together and

the claims of aspirants were considered from the closeness of their kinship to the deceased *ariki*. Pedigrees were recited and threshed out by the district chiefs and relatives. A decision was made, not by voting or counting, but by the consensus of opinion indicated by the speakers, who based their arguments on kinship and suitability. Such an election is described by Lamont (15, p. 277).

A few days afterwards a near relation of the late Opaka made his appearance from Ruahara, and created a considerable sensation. The day after his arrival I was summoned by O Pai Tangata to Haka Shusha. As I proceeded to that solitary part of the island, I found all the people hastening in the same direction, but keeping a mysterious silence as to the cause of the meeting. I soon discovered, however, that it was to appoint an Iriki in place of Opaka. He having died without male issue, my father and the Ruahara chief were the principal competitors for the position of the departed Iriki. After much discussion, it was finally arranged that our new friend should rule over the territory of Haka Shusha (depopulated when conquered by Opaka, and now again raised to a separate kingdom), and that my father should be monarch of Sararak.

O Pai Tangata (?), Lamont's adoptive father, was chief of Tahiti, a subdistrict in Mangarongaro. Lamont's use of "Sararak" as a territorial name could not be explained by my informants. They maintained that the large island was divided into two divisions known as Mangarongaro and Hakasusa (Lamont's "Haka Shusha"). The form of the word "Sararak" with a final consonant is incorrect. The only word my informant could think of was Hakasari, which was not a land division. However, the method of selection by discussion is indicated, and also the diplomatic method of reconstituting the old territory of Hakasusa and, by satisfying the two claimants, avoiding war.

No elaborate ceremony such as occurred in the Cook Islands and in the Society Islands seems to have been associated with the investiture of the *ariki* title. Among the functions of the marae there was no ceremony of raising the *ariki*. After the selection a feast was held, as described by Lamont (15, p. 277).

Coconuts, in all their stages—from the young vai to the cooked uto—were placed in neat baskets, ornamented in a way I had never seen before, and, after passing through various hands, during which prayer was muttered over them, they, together with orora and fish, were laid at the feet of both the chiefs, who did ample justice to the repast.

The use of all stages of the coconut, together with *roro* ("orora," coconut cream) showed that the full resources of food supply had been called upon to mark the occasion. The special ornamentation of the food baskets, with the recital of incantations, are special features of which I could get no detail. Lamont (15, p. 183) states that after ceremonies which consisted of officiating on a marae and being fed with turtle cooked at another marae he became a person of importance and bore the title of "Iriki." The

marae ceremonies were probably his official reception at Motu-unga and had nothing to do with the investiture of a title which could only have been honorary.

Mr. S. Savage, Registrar of the Court at Rarotonga, writes me that at one period an *ariki* named Turua asserted himself *ariki* of the whole atoll. During his term any turtles caught were taken first to Turua. This *ariki* is evidently the Turua in Table 6, generation 11. He was a direct descendant of the two *ariki*, Pohatu and Poaru, and probably claimed the power of the two *ariki* titles in his own person. He was evidently strong enough to maintain his position, as evidenced by his exaction of the turtle tribute. Later, in the period of Maireriki, the turtle tribute was not exacted, and each chief or individual was entitled to keep what he caught. The power also passed more into the hands of the heads of the territorial groups.

The lesser chiefs who ruled over districts and smaller islands were referred to as *tangata maro kura* (men with red girdles). The use of a red *maro* was not known, and it is evident that no such girdle could be made from the material available in Tongareva. The term must, therefore, have been derived from the usage in Tahiti of girding certain *ariki* with *maro* composed of bark cloth covered with red feathers. The memory of the custom was carried over to Tongareva, and the term was used as an honorary title but widened in its application to chiefs who were not *ariki*.

In another class within the community were the priests, or *taura*. The term *taura* corresponds to the *taula atua* of western Polynesia. Like the *taula atua*, the *taura* were the mediums of certain lesser gods who were invoked for assistance in cases of sickness, war, and economic and social troubles. The acceptance of Christianity has led to the suppression of details concerning the office of *taura*. It is uncertain whether the office was hereditary in certain families or whether individuals received a special call. There was evidently a special inauguration, for Tupou Isaia states that one of the functions of the marae was the raising of the priest (*hikianga taura*).

Although not constituting a class, certain individuals noted for their knowledge and power of seeing into the future (*mata kite*) were known as *karakia*. The term *karakia* in the Maori dialect means an incantation, which in Tongareva is termed *hai*. It is evident that in Tongareva the meaning of *karakia* has been diverted to apply, not to the actual incantation, but to the person who possessed a knowledge of them.

The power of the chiefs and *ariki* was restricted and depended largely on the wealth of their food lands and the support they received from their people. The communities were comparatively small, and the resources of the atoll would not encourage the development of an elaborate ceremonial like that which was built up around similar positions in the larger and richer volcanic islands.

AUTHORITY AND LAW

Authority within the biological household rested with the father of the family, who controlled his sons and daughters and promulgated orders concerning ordinary routine. When the sons grew up community questions were discussed usually during the evening at the gravelled space before the huts. Though control was loose in minor matters, the father's authority as head of the family and owner of the food lands was indisputable in matters of moment. An elder son who deliberately opposed his father could be disinherited, and a large share of the land to which he would have succeeded could be given to a more obedient son. When the father became too old for executive activity he relinquished the government of the family to his eldest son.

The heads of the families, constituting a small, closely related group, met in the same way to discuss subjects of group interest. Though deference was paid to the opinions of the senior member, all were entitled to express their opinions. In an isolated community with few matters to excite interest all events that took place, or were about to take place, were fully and freely discussed.

The system of leadership by hereditary chiefs or senior members of families had already been established when Mahuta landed in Tongareva. In the subsequent development which took place the families and family groups retained their rights to free speech. The accretions that attended upon the chieftaincy in areas such as Hawaii, where the high chiefs became absolute autocrats, never took place in Tongareva, with its small population, territory, and limited natural resources.

In the territorial community government was really an extension of the principle that pertained in each family. The male population gathered together in a community meeting at the social center, either in the large house of the principal chief, or in the open space adjoining it. Such meetings took place in the daytime. In the free and prolonged discussions which took place the heads of family groups voiced their opinions, which were concurred in by their groups. The influence of a speaker in the community discussion was dependent upon his hereditary position and his personality and experience as expressed by his powers of oratory. The senior chief, or *ariki* of a district, if wise and of strong personality, might dominate the meeting, but though seniority was deferred to, it was not always accepted. If a lesser chief with a large numerical following of kinsmen dissented from going to war, the *ariki* could not, merely on the basis of his own superior rank, force him to change his opinion. The heads of families supported their group leader not only because he voiced the group opinion previously

arrived at in conjunction with themselves, but also because he represented their blood group, and because the group prestige must be supported. Similarly, the skillful territorial leader could command the support of local groups by using judiciously the prestige of the territory of which the groups were component parts. The lowering of prestige at the hands of another territory was unthinkable and formed a strong incentive to united action. The thought of the loss of property as well as of life in defensive warfare was sufficient incentive to practically mechanical unity of action. The satisfying of ancient grudges was an additional stimulus.

The importance of the community assemblage is seen in the appointment of new *ariki* (See p. 49). In such an assembly there was no head to the government, as the old *ariki* was dead. The gathering was called together after the preliminary discussion of the place and time by the interested chiefs. If the deceased *ariki* had no son the gathering resolved itself into a meeting of a court of heralds. Like other community questions, the subject had been previously discussed by the local groups, and some plan of action had been arrived at by the groups immediately concerned in the succession. Pedigrees and closeness of relationship were put forward by the supporters of those concerned and a decision was arrived at after full discussion. The feast followed the acceptance of a nomination after the discussion by various speakers.

Regulations bearing upon the conduct of life, which in Western culture might be deemed to come within the province of government, were controlled automatically by established customs. Custom indicates appropriate procedure under the various circumstances which face the individual or the community. Children, by observing their elders or by parental instruction, are taught the correct procedure, and no other mode of action occurs to them in life.

In customs which carry prohibition it is natural to suppose that such prohibitions were originally instituted through family and group discussions, were accepted, and became established through continued observance. Customs act automatically, and there is no need for governmental control. Western civilization lacks the mechanism of custom and tapu which makes the lower cultures self-acting. Unless Western civilization is constantly controlled by a system of law courts, with an efficient police service, it often breaks down into depths of degradation into which lower cultures are incapable of sinking. When Lamont (15, p. 182) threw a piece of cooked turtle to some women and they fled screaming, "It is forbidden," the chiefs had to control the stranger ignorant of customs by telling him not to do it again, because women were not allowed to eat the turtle cooked in the oven associated with a religious structure.

Some customs do not work automatically, but have to be initiated deliberately when circumstances demand. Such is the *masanga* custom of declaring a closed season over depleted coconut trees in order to allow the crop to recover. By declaring a *masanga* the individual may close down one tree or his whole plantation. His authority is that of ownership. He probably discusses the matter with the family and then ties a piece of coconut leaf around the trunks of the prohibited trees to indicate to his family that in gathering food supplies these particular trees must not be touched. A declaration of the *masanga* is an individual matter which concerns the owner and his family. A community *masanga*, however, requires a community gathering and an official declaration by the community government. Lamont (15, p. 273) describes such an event at Mangarongaro. Because of many deaths from a prevailing epidemic, death feasts had depleted the coconut supplies of the whole territorial division. A meeting was called at the territorial center, and the advisability of declaring a general *masanga* was discussed. The *masanga* cut off the main food supplies for a long period, and the only course open to prevent starvation was to raid the crops of other islands, which meant war and loss of life. To enter upon such a drastic step, the unanimous consent of the whole territorial group had to be obtained. As the members of the wrecked *Chatham* had been adopted into the Mangarongaro community, their consent was also necessary before the *masanga* could be declared. One of the native crew who knew native custom was much adverse to consenting to the *masanga*, fearing that the prohibition of coconuts would lead eventually to cannibalism. The native members of the community were anxious for the whites to agree to the *masanga* and to assist them in the raids which would follow. The whole matter was threshed out by speakers at the meeting. The symbol of the general *masanga* was the wearing of a piece of plaited sennit around the neck by all who accepted it. Lamont compromised by accepting the *masanga* and then going to another island to live while the custom was in force.

In some community customs the community acts without having to be officially notified. Thus, when a fleet of canoes appeared off the shore the news was called from mouth to mouth and the entire population appeared on the beach. After the preliminary speeches the reception of visitors followed the ceremonial pattern automatically, without any necessity for governmental control.

What constituted right and wrong conduct had been defined by custom. Custom was obeyed without thought of opposition and there was little need for courts of law with police to hale malefactors to justice. Prohibitions by tapus were observed out of fear and ingrained obedience. The person who broke the conventions of society was condemned by public opinion,

and vilification was his psychological punishment. The wrongdoer lost prestige when he offended against his own community group.

Certain offenses, such as violence, theft, adultery, and homicide were recognized. The individual was the protector of his own property and honor. As Lowie (16) remarks, the individual was his own judiciary and his own executive. Small thefts led to recrimination and vituperation which might develop into personal violence. The theft of food supplies was a serious offense, and the thief ran a chance of being speared or killed by the enraged owner, or by community members who rushed, armed with spears, to the spot.

An unfaithful wife was beaten, and if the correspondent was caught he suffered physical violence. Divorce because of unfaithfulness consisted simply of separation. A husband might send his wife back to her own people, or a wife might leave her unfaithful husband. Whether or not a system of raiding or confiscation of property was practised was not ascertained. In the legend of the unfaithful wife, Sokoau, Sokoau was killed by her husband. The husband, for his outrage, was in turn killed by Sokoau's two brothers. The husband's people stood by, for they were afraid of supernatural powers attributed to the two brothers.

The crossing of a boundary between two districts which were hostile was a serious offence. The offenders, if caught, were killed, and the only legal remedy the relatives had was to act likewise when the opportunity occurred, or to lead an organized expedition against the enemy.

Deliberate raiding of plantations was conducted by armed forces who thought they would be quick enough to get away, or who were in sufficient force to engage in active hostilities. Here the only law was that of force, and retaliation for the owners of raided plantations was obtained in warfare.

WARFARE

A trend toward separation and not fusion in interterritorial relations and the necessity for protecting property led to constant fighting and warfare. A war party (*nuku*) was often divided into a larger advance party (*rakau matua*) and a smaller supporting party (*rakau pataiti*). When a raiding war party was discovered, the alarm, "*Teia kua kake e—*" (Here, they are upon us), was sounded. The men pressed noses with their wives and children and picked up their spears—*Ka songi i te wahine e te tamariki, ka mau i te to*. The women hid their valued possessions. The old women and children hid as best they could while the warriors and active women gathered to resist the invaders. During the preliminary stages a scene of apparent confusion and tumult prevailed, but once the forces were arranged, calm succeeded.

The two opposed forces sat down a little distance from each other. Speeches were made between the two parties, the raiders giving their reasons for their coming, and the local force protesting against their action. If the speeches of the visitors were hostile, they were replied to with equally hostile speeches, and the visitors were dared to proceed. The exchange of speeches having indicated that neither were the raiders prepared to retire nor the defenders to allow themselves to be robbed with impunity, hostilities commenced with a shower of stones and spears thrown at a distance of about 100 feet. These were thrown by the men, while the women of either side went out in front and with their light *tamutu* clubs beat down the flying spears that were projected toward the men. No spears were thrown at the women by either side, nor was any physical violence offered to them by the men, as it was strictly against custom to do so. After the ammunition of stones and spears had been expended, the forces came into closer contact, and the men fought with their clubs or with truncheons when the press of battle became too close to use the longer *korare*. After the women had lost their protective function of guarding against the spears, they engaged women of the opposite side in hand to hand fighting. Their light clubs seem usually to have been discarded, and they fell back on the primitive instincts of seizing each other by the hair. It was the object to get the best of a personal encounter rather than to kill. If the winner managed to get a handful of hair from her opponent's head, the hair was afterwards boastfully displayed as a trophy of prowess in the field. Deaths among women in war must have been rare and due more to accident than to design.

The main cause of war was the coconut. The proclaiming of a *masanga* (see page 53) forced the people of closed territory to make raids on their neighbors' plantations. The *masanga* and active raiding went together. A raiding force, if not particularly strong, made a sudden descent and tried to get away with the loot before effective opposition could be organized. On landing, the young men climbed and stripped the trees, casting the nuts to the ground. The older men tore strips down from the husk and by this means tied the nuts together in pairs. Ten pairs, called *tekau*, were bundled together and were carried down to the canoe by the old men. The stripping of a plantation was accomplished in record time and left the owners in an impoverished condition. Through reciprocal raids lasting animosities were created between communities. Some of the battles that resulted were very bitter and led not only to the removing of the crop by the conquering party of raiders, but to the destruction of the trees of the enemy as well. This was done by cutting off the tops of the palms.

The ambition of the leader of an island or a territory might lead him to subjugate neighboring smaller territories. Alliances were also made by

defeated groups to enable them to effect reprisals. Fortune wavered from generation to generation. Thus, not long before 1853 the people of Tautua were the most dreaded in the atoll, since they had subjugated all territories on the east coast. Their enemies had united, however, and in a pitched battle not only defeated the Tautuans but killed so many that Tautua never again regained its prominent position. In Lamont's time (15) Tautua was under the power of Te Puka. (See 15, pp. 333-4.) Similarly, Mangarongaro, under Opaka, had subjugated Hakasusa, and Motukohiti was allied with Opaka. Omoka was allied with Motu-unga, and they held their own against the others. Ruahara and Tokerau evidently tended to side with Motu-unga and Omoka. During Lamont's stay an alliance was made by Te Puka with Mangarongaro and Motukohiti for the purpose of attacking Omoka and Motu-unga. The allied forces proceeded against Omoka, the Te Pukans sailing in their canoes and the Mangarongaro army proceeding by land to join with Motukohiti. On nearing Omoka the Te Pukan fleet sailed to the north to intercept the Motu-ungan canoes hastening to join their allies at Omoka. The Motu-ungan forces eluded the Te Pukan fleet by entering an inner passage of the reef and landed before they could be intercepted. The Te Pukan fleet then sailed to the assistance of its allies, but before the fleet could reach the shore the combined forces of Omoka and Motu-unga attacked the army of Mangarongaro and Motukohiti and put them to flight. Te Puka was thus out-generalled and did not land, but continued along the coast to Motukohiti. The army of Omoka kept pace along the lagoon shore, taunting and daring the fleet to land. In this fight the number of casualties was evidently small, Lamont mentioning that a number of Motukohiti warriors, only one of whom died from a spear thrust through the chest, had been wounded.

Shortly afterward, 60 Te Puka men in three canoes raided the island of Motu-unga in the absence of the warriors at Omoka. The women raised the alarm and lit a fire on the point toward Omoka to warn their men. As the war canoes were being refitted, the warriors of Motu-unga and Omoka could only use a few canoes. After having been directed by a swimmer from Motu-unga as to the direction pursued by the raiders, the pursuers caught up with the three heavily laden canoes of the enemy in the early morning. In the engagement which followed, seven Te Pukans were killed and several wounded, but of the attacking forces only a few were wounded. The casualties, according to Lamont (15, p. 347), signified a serious engagement.

Even in the ceremonial visits that took place between groups which had been hostile much suspicion was held by both sides. This led to the long preliminary speeches before canoes were allowed to land and also to the

allocating of camping grounds some little distance away. Under such conditions the unwilling hosts often remained under arms as a precautionary step against sudden attack. The visitors also made their dispositions in a careful manner. When the Te Pukans visited Omoka they drew up their canoes only a short distance from the sea, raising a breastwork for their protection. They kept one war canoe afloat with a strong body of men in it to protect the shore party while they launched their canoes, should a sudden attack arise. Lamont (15, p. 326) states that owing to a misunderstanding an attack did take place, but that the alert Te Pukans retired behind their breastwork of canoes until an understanding was reached.

PROPERTY

The spread of population has been associated with the need for land upon which to plant coconuts. The right to land was established by occupation. The growth of population led to the parcelling up of islands into divisions and districts within which families traced their rights by inheritance from the first families who occupied the land. Smaller subdivisions were made by adjustment between families united by close blood kinship.

The whole system was flexible and adjusted itself from generation to generation. Flexibility was rendered possible by the social structure which, no doubt, was influenced to some degree by the importance of land. Patrilocal residence made patrilineal inheritance important, but it did not immediately obliterate the rights of an absentee. A married daughter could at any time return from her husband's home and collect her share of the coconut crop on her father's land. During any prolonged absence her share was used by her father or brothers. If her share in her father's land was small and the land of her husband was more than sufficient to provide for their family, a married daughter might give up her active interest in her paternal land, and at her death her rights might vanish, through her failure to maintain the exercise of ownership. The shares of the patrilocal group were redistributed from generation to generation. On the other hand, if her share was large and her husband was comparatively poor, the married daughter maintained the exercise of ownership over her paternal lands. Thus Lamont (15, p. 184) mentions that Ocura (Okura), because she was the daughter of a high chief, was one of the richest heiresses of Omoka, whereas her husband, Turua, a younger son, was not at all wealthy. The couple lived on Motu-unga at the husband's home, but all their property came from Okura. The heiress could live with her husband and collect her crop from time to time, take her husband to live on her land, or apportion it out to her children. Matrilineal inheritance and matrilocal residence could thus occur, but by the time of her grandchildren, succession would again be

patrilineal, and residence patrilocal. Hence, through inheritance and succession in the patrilineal line with patrilocal residence, the very recognition of the daughter in the patrilineal sharing of land led to the recognition of matrilineal succession and matrilocal residence.

In the distribution of land the eldest son, as the direct heir to his father's position, received the largest share of land. In a large family of boys the youngest members received comparatively small shares, but by marriage with wealthier wives or by adoption by wealthy relatives their condition with regard to land was adjusted. The wealthy man with no family adopted sons not only in order to have someone upon whom to lavish affection but to have assistance in managing his estate.

On the death of an individual without issue his share went back into the family pool for redistribution. Though the individual exercised the right of ownership over land during his lifetime, the family blood tie was never lost.

Because of the small area of the Tongarevan islands there are no large unoccupied back areas of forest land. What correspond to hinterlands over which communal rights are exercised are the sea and the lagoon. Even within the lagoon, however, communal rights over shell fish grounds and rocks are exercised only by the local groups which live near them. On the land the communal rights have disappeared.

The sharp definition of individual rights to land was no doubt accentuated by the coconut tree. The coconut, introduced by Mahuta, had to be planted by man. The man who planted a coconut on land that he occupied had the right to its fruit when it grew up. Thus, individual ownership of the land and the coconuts which grew upon it went together. The planting of coconuts, if allowed to go unchallenged, established the right to land even without occupation. It is probable that during the early spread of population families first planted some districts and moved to them when the trees became capable of bearing. On the larger islands the boundaries between divisions remained wide. The inhabitants of one division immediately pulled up any nuts planted near the boundaries by inhabitants of another division. To allow the trees to remain would have been to recognize rights of the owners of the trees to the land. All fruit-bearing trees have owners, and the nuts on the trees and those that fall to the ground are private, not communal property. In former times, the trees were watched, and an alarm was immediately raised if anyone climbed a tree not his own. Not only was there a natural desire to save inroads on private food supplies, but to allow strangers to take nuts was to admit that the tree was public property and so to diminish the rights of private ownership.

The jealous preservation of the rights of private property has now been relaxed, however. During my visits to the various islands we took drinking

nuts from trees. If a member of our party owned the land upon which we happened to be, he indicated the tree from which nuts should be obtained and thus acted as host. If we met a man camped on his land, it was he who indicated the drinking nuts to be used. Where landowners were not present we took nuts without leave, knowing that for our particular party the owner would be pleased to act as an absent host.

When the mature nuts fall to the ground they remain there until the owner finds it convenient to gather them into heaps to remove later for food or for making copra. During the visit of H. M. S. *Veronica* in 1929 the sailors, after their walks, returned laden with mature nuts which they had picked up off the ground or from the small heaps. To them the coconut groves were a forest and the nuts common property. The natives watched them passing through the village of Omoka and said nothing, as the sailors were visitors to the country. All the trees and nuts, however, were private property and had other natives carried off the nuts in a similar way, the private property would have been claimed immediately. Some trees have been planted so irregularly that the straight lines demanded by modern surveys cut through the plantations, and an owner may find some of the trees to which he has claim are on the other side of an artificial modern boundary line. This has occurred at Rakahanga.

The scarcity of water springs increased the importance of coconuts as a beverage and led to the custom of giving a friend or relative a coconut tree for his private use when he visited the place where it grew. Such trees became private property, but carried no right to the land upon which they grew. The trees were inherited by the next of kin like any other private property. Today the owner of such trees collects the mature nuts for making copra for sale, and the conditions out of which the custom arose have disappeared.

Private ownership extends to goods and chattels as well as to land and coconut trees. However, free borrowing and ready acquiescence in lending exist. Such conditions are natural in a society which is composed of so many blood relations. People desiring the use of some material thing which they do not possess feel that they have the right to borrow or take that of a kinsman, and the owner cannot well refuse. To an outsider the use of the same object by different people conveys the impression of communal ownership, but within the community the individual ownership is known. A close member of the family may borrow an object without asking for it, but if someone of a different family should take it, the action would be regarded as a theft and would lead to trouble. The restriction of the use of an object to the individual owner such as exists in Western culture would be looked upon as an exhibition of meanness and selfishness. It may be said, therefore, that with regard to most goods and chattels individual ownership exists with community use within the family.

LAND SETTLEMENT

VILLAGES

Growing households spread out from the original centers until a district was occupied by a number of biological families. The immovable coconut trees rendered the establishment of family households on or near the food lands necessary to lessen the distance that the coconut food had to be carried, and to enable a watch to be kept on the trees to prevent depredation of the crop by thieves or raiders from other islands. The protection of the main food supply was of vital importance. A watch was maintained by the old women and younger children to free the active men for other duties. Lamont found in his journeys around the atoll that even when no one was visible, immediately a tree was climbed for drinking nuts some old woman or child appeared as if by magic and raised the alarm, "*Taku ate, e kaia*" (My heart, a thief). The cry quickly brought armed men of the local group to the spot to protect the property of a member of their community. Under such conditions the congregation of people into villages was unsuitable. The family households were, therefore, scattered over the islands, though there was a tendency for closely connected families to have their dwellings close to a common meeting place. A single biological family had a dwelling house and a separate cooking house. Two related families would have their own dwelling house, but they might share a cooking house. A chief usually collected more relations and adherents around his own immediate household, so that the group of huts was increased in number.

Lamont's first experience of a complex household and a small family group are worth quoting (15, pp. 115, 116):

At sunset, various little groups began to form and move off in different directions, the men invariably armed with one or more long, slight spears, made of the coconut wood, the women also carrying a club of the same material.

These were the small family groups of the district returning to their homes. Lamont had been adopted by one of the chiefs and was ordered to follow him. The group consisted of the chief, three children, and a party of seven or eight men and women. Later on they were joined by some more children.

After a walk of a mile or two we abruptly turned inland, and in a few minutes halted at a little hamlet, I might call it, in an open space, strewn with white gravel from the sea beach, and planted round with young cocoa-nut trees whose bright leaves completely shaded the three little huts that half occupied the space; while another, partially hidden by some pandanus trees was evidently the cook house. The white gravelled plot was scrupulously clean, and looked prettily bright in the surrounding darkness of the forest. A mat taken from the house, was spread on the ground for my use, and I sat or rather reclined on it. The natives also used mats, sitting à la Turque.

In this description Lamont gives an excellent picture of the small family group consisting of about 15 people and occupying three residential huts. The huts adjoined a clear space strewn with coral gravel, and at the back was the single communal cooking house. The graveled space was a necessary adjunct to the dwelling houses, for here the family rested on mats in the cool of the evening, gossiped, and had their meals. The huts were slept in at night and provided shelter from the noonday sun, and the cooking was done in a separate house in the rear. The foundations of the small dwelling houses are still to be seen, distributed over all of the habitable islands and bearing witness to the individual occupation of land.

House foundations in fairly close proximity indicate the existence of groupings larger than the one above described. These houses, together with the larger house (*hare nui*) of a chief may be regarded as the social center of a territorial group, where the social gatherings of the community took place and where the chiefs of subdistricts gathered to discuss matters that concerned the community. It was also the place where visitors were received and entertained. Though the houses were not numerous enough to be considered a village, they formed the nucleus of a village and the administrative as well as the social center.

Houses were so easily and quickly made that groupings were readily formed for protection against a strong enemy. At such times the fear of the loss of food crops was overshadowed by the fear of death. The food lands were allowed to go unguarded, and the people, by crowding their dwellings together, formed a village. The close approximation of dwellings expedited quick mobilization against sudden attack and marked the condition that existed among a people weakened by previous conquests. This was observed by Lamont (15, pp. 169, 170):

At Mutagohiche [Motukohiti] the natives were all congregated near one spot, forming a considerable village, for mutual protection against their powerful neighbors of Omuka; whilst the people of the latter place, having no dread of an attack from their despised enemy, are scattered over their little country, each to his own possession.

Even in Omoka small areas within the main division were regarded as village districts and given names. The names of the villages of Omoka enumerated to me by Tupou Isaia are Omoka, Tarakore, Tanoa, Te Pa, Te Vera, and Te Rama. Such places may be regarded as the village nuclei and not as villages in the usual accepted form. However, had the fortunes of war changed and Omoka been reduced to a condition similar to that of Motukohiti, the village nuclei would have served as rallying places, and true villages would have been created. Thus, scattered households with a common social center may be regarded as normal during times of peace and prosperity, whereas villages indicate previous defeat and fear of further attack.

The advent of Christianity in 1854 altered the whole complexion of life. War and the raiding of coconut plantations ceased. It is to be presumed that the new system of conduct taught that the stealing of another person's coconuts stood in the way of future reward. The necessity for the individual protection of food lands thus, theoretically, disappeared, and the erection of dwelling houses on the food lands was no longer a necessity. The missionaries coming from established villages grouped around churches instituted a similar organization in Tongareva. Churches were erected at the social centers of Omoka, Motu-unga, Tautua, and Te Puka. The people of the local districts built their houses in the neighborhood of the churches, and the small social centers grew in size. People of neighboring districts also built houses at the nearest of the four religious centers to which they had kinship affinity. In the course of time the entire population was congregated in four villages built around the churches which became religious, social, and administrative centers. The order of life was reversed. Formerly the people lived on their food lands and congregated at the marae for their religious services; now they live congregated at the new form of marae and go out individually to their food lands. The Peruvian slavers depleted the population of Motu-unga and Te Puka more than that of the other two villages, and the remnant of the population congregated in the two villages of Omoka and Tautua. Historically, the village of Te Puka was more important than that of Tautua, but the loss of its leaders led to the survival of Tautua. The change effected in social structure by two elements of Western culture, namely, Christianity and slavery, cannot be more marked than in Tongareva.

THE SPREAD OF POPULATION

The primary cause of many Polynesian expeditions was the search for land upon which to settle and obtain food. Some expeditions, however, were exploratory; others arrived by accident at islands. Most expeditions brought no food plants which could be cultivated. All the islands of Tongareva (fig. 2) except the small rocky islets supply the staple articles of diet, but at the time of European contact vegetable foods were restricted to the coconut and the fruit of the hala (*Pandanus*). It is accepted that the coconut is an introduced plant in Polynesia, and most island narratives contain references to its mythical origin or its introduction. Tongarevan tradition states that both the coconut and *Pandanus* were introduced by Mahuta-nui—a true statement as regards at least the coconut. This story by itself might merely indicate that coconuts formed part of his sea stores. When, however, the tradition further states that sailing directions and a pilot had been given to Mahuta-nui in Tahiti by Taruia, who had previously visited the atoll, the

inference is that Mahuta came definitely to settle. If he brought other food plants they did not thrive and were thus not enumerated in tradition. Taruia had previously landed at Tokerau, where he left some members of his crew. Taruia's expedition was evidently purely exploratory. He had no food plants with him, and, presumably, seeing that the atoll was without vegetable food, he resumed his voyage. He had no incentive to settle down. He may have told Mahuta in Tahiti that the land was without coconuts, which perhaps led Mahuta to take an ample provision when he sailed. The third legend regarding the original population of Tongareva is that the ancient line descended from Atea and Hakahotu. The Taruia narrative gives no account of people in occupation. However, as Taruia landed at Tokerau and sailed past Omoka, he may not have explored the southern part of the atoll where the first inhabitants may have been located. On the other hand, many of the traditions regarding the smaller islands are short and lacking in detail. The first wave of people is personified in Purua, son of Takatu, who, after he arrived, married Mahuta's daughter. As Mahuta built his marae at Te Puka in the south and seems to have moved between there and Mangarongaro in the west, it seems likely that Purua was located in the south. This may explain why the Taruia narrative is silent about inhabitants. The lack of information regarding which of Purua's ancestors first arrived on Tongareva, with no mention of the name of an ancestral voyaging canoe, leads to the conclusion that the settlement by the first inhabitants was accidental, and one probably without any men of great standing or scholarship. All they could remember were the primary parents Atea and Hakahotu, with some of their well-known sons, such as Tane, Tangaroa, Rongonui, and Maru. To these authentic sons a few others were added, including the much later historical character, Tahaki; and these, through a short, single line of a few generations, were linked up with Purua. Here again is useful information, for with the hardships that some scattered groups of castaways must have suffered, it is not to be expected that they retained the full detailed narratives that characterize the accounts of the carefully organized expeditions under high chiefs accompanied by priests and scholars. The brief narratives of Tongareva are, nevertheless, human documents of the greatest interest and value. They indicate clearly what must have been the natural sequence in the settlement of small, obscure land areas of Polynesia. The great expeditions under men of note sought out the larger islands for occupation. The men of these expeditions transmitted family pedigrees over a long exploratory period in which ancestral heroes figure and over an elaborate mythical period in which gods and abstractions were philosophically arranged in sequence in the genealogies. Even the organized expeditions to Hawaii and New Zealand found a people already in occupation,

with a history that has come down in an unsatisfactory and mutilated form. The later explorers have always belittled their predecessors and purposely robbed them of much credit by obscuring the earlier narratives and even incorporating some elements from these into their own.

The Tongarevan narratives give a clear account of the order of settlement. The earlier drift voyage of a people without food plants, who had to live on what they could procure in the sea and lagoon and were isolated from the outside world, comes first. Then comes the exploratory voyage by a chief in touch with other lands and led by the spirit of adventure to make a discovery which he reported in Tahiti, thus recording himself among the heroes of discovery. Tahiti was the hub of the Polynesian world, where adventurous spirits gathered and told the tales of their adventures and discoveries. Raiatea, under its ancient name of Avaiki, was the earlier Polynesian center. It was to Raiatea under the Maori name of Hawaiki, that Kupe returned in the tenth century to report his discovery of New Zealand, but it was not until four centuries later that a definite colonizing expedition with food plants for cultivation set out under the sailing directions handed down from the first discoverer. It was from Tahiti (Kahiki) that the explorers later sailed forth, and found the Hawaiian Islands, which were already occupied. Subsequent voyages were made back and forth to obtain cultivable food plants and to introduce new chiefly blood to ally with the older existing stock. Taruia, the explorer, thus sailed on to the Avaiki center, which for him must have been Tahiti, for Mahuta, to whom the tale was told, was then married to a daughter of Tu-Koropanga, a chief of Tahiti. Mahuta had been forced to leave Rakahanga and had no land of his own. The tale of a new land in which he could establish himself came as a solution to his problem. He therefore fitted up an expedition, took a pilot and food plants, and with his family sailed for Tongareva, where he took up his permanent residence. Thus we have repeated the natural sequence of accidental discovery with settlement without introduced food plants, purposive discovery with return and report at the Polynesian center, and, last of all, settlement and the introduction of food plants.

That the Purua line was in occupation before either Mahuta or Taruia arrived must be stressed. Purua did not come in Mahuta's canoe nor in Taruia's, and my informant, Tupou Isaia, stressed the statement that his line had been in occupation since Atea and Hakahotu. They were thus on the atoll before the introduction of the coconut, or as tradition would have it, before the coconut and the *Pandanus*. There is a plant growing on Te Kasi with a bulbous root, the name of which was unfortunately not recorded. Tupou states that this was eaten. Apart from this, there could have been no vegetable food, for even the *none* (*Morinda citrifolia*) is absent.

It seems improbable, therefore, that the first stock could have increased very much. Presumably living in the south, they had not spread to Tokerau and Omoka. It is unfortunate that the short stay on Tongareva prevented my utilizing the knowledge of the older people to analyze the pedigrees collected and so locate the parts in which the earlier ancestors lived.

The pedigrees in themselves indicate the manner of growth of population and social structure, though it must be admitted that they record only the main lines of the living inhabitants. It is the duty of each family to preserve its own pedigree, and the pedigrees of families which die out or leave the country are liable in the course of time to be forgotten. From all the pedigrees collected, Table 7, showing the first six generations, has been compiled.

The first generation is arbitrarily commenced with the period of Mahuta and Taruia, with whom is grouped the older settler, Takatu, the father of Purua; the wife of Takatu is not recorded. Takatu had his household, his wife and son, Purua, and there must have been a group of settlers associated with him whose names are not recorded in separate pedigrees. He probably lived in the south or east. Taruia did not establish a household, but passed on, leaving some people who, according to the pedigrees, were his children. Mahuta-nui built his first marae at Te Puka in the south, and probably established his household there. His family consisted of his second wife, Hotio, her four children, and his daughter, Pokiroa, by his first wife. Mahuta, again, must have had some of his crew and their wives with him, but they are not specifically mentioned. There are thus in the first generation the elements for three separate establishments or family groups, which would form three primary centers of settlement.

In the second generation Takatu is represented by his son, Purua, Mahuta by five children, and Taruia by three, making a total of nine to be accounted for. Of these nine, the pedigrees drop three and only provide marriages for the remaining six. In the marriages which took place one problem was solved by the union between Mahuta's daughter, Pokiroa, and Purua, who belonged to the older settlers. This was a diplomatic move in keeping with the Polynesian custom of uniting the more recent voyaging stock with the main line of the earlier settlers. The first contact must, therefore, have been peaceful. From then on, the Mahuta stock by his first wife merged with that of Takatu and peace was cemented between the two families or groups.

A difficulty occurs, however, with the other four marriages. Pange, who was Mahuta's eldest son and who would succeed to his father's rank, married Pusiakura, but to what group she belonged is not clear. She must have belonged either to the earlier settlers or to a family which accompanied

Table 7. Genealogy illustrating early spread of population

1.	2.	3.	4.	5.	6.
TAKATU, m. } ?	Purua, m. = Pokiroa *	Te Vaihakatupua, m. } = Pasura, f.	Rangisaruru, m. = Takotoroa, f.	Matakuni, m. = Hakarere, f.	Horauoa, m. = Tinikarere, f. Takatu, m. = Kakarahua, f. Tuatino, m. = Tinikainga, f. (1) = Akatikatika, f. (2)
	Pokiroa * f. = Purua }				Ponakino, m. = Putoko, f. Telkatuarangi, m. = Sekereka, f. Koherima, m. = Mochano, f. Pokiakore, m. Mohotu, f. = Matangisau, m. Kahuri, f. Hirikaha-hakausu-vananga, f.
(1) Roriki MAHUTA, m. } (2) Hotio }	Pange, m. = Pusiakura, f. }	Mahuta-ite-uhi, m. = Raira, f. }		Takikava = Moeroroko, f.	Rangiakatu, m. = Keremata, f. Kaiparapara, m. ? = Papapureva, f.
	Ravasua, m.		Siku, m. = Suakimarama, f. }	Te Ikatupunga, m. = Pokimata, f. }	Tuperekahiti, m. = Hakatoro, f.
	Saki, m.				
	Rapi, f. = Taao, m.	Tumanava, f. = Te Ika, m. }	Te Ika, m. = Ravainuroro }	Haingaturua, f. = Pupuke, m. }	Tanupo, m. = Uhia, f.
TARUJA, m. } = Taritoa }	Titia, m. = Rangamea, f.	Pupuke, m. + + = Haingaturua, f. (See column 5)			
	Rava, f.		Te Purematupua, m. } = Uretama, f. }	Hongotangata, m. = Inuakangaro }	Katimau, m. = Ravatanginui, f.
	Tauhirangi ? = ? }	+ Ravainuroro, f. = Te Ika, m. }		Toroahuru, m.	
			Haingaturua, f. (See column 5)		

Mahuta. Similarly, Mahuta's youngest daughter, Rapi, married Taao, who must have belonged to the same category as Pusiakura. The pedigrees attribute three children to Taruia, and the difficulty is that they are not specifically mentioned in the tradition dealing with his visit. However, it will be presumed for the sake of the genealogical study that they settled in Tongareva in the northern part. Titia, a male, married Rangamea, who also probably belonged to the early settlers, and Tauhirangi married someone whose name is forgotten. Of the recorded lines, there are thus five married couples in the second generation.

In the third generation only one issue is given to each of the preceding marriages, and the number of households is thus not increased. A further blending, however, occurs in the marriages. Mahuta-ite-uhi, son of Pange, had two sons of whom the younger Te Ika (fourth generation) married Ravainuroro, daughter of Tauhirangi. This marriage thus united the Mahuta line with the Taruia line. Furthermore, the offspring of the marriage, a daughter named Haingaturua, married Pupuke, son of Titia, and again unites the Mahuta and Taruia lines. Haingaturua is in the fourth generation on the Taruia line and the fifth generation on the Mahuta line; her husband, Pupuke, in the third generation on the Taruia line. To account for the difference of two generations, Pupuke must have been fairly old when he married. As the strict application of the classificatory system of relationship only counts from a common ancestor, the difference of two generations from an arbitrary commencement point without blood kinship between Taruia and Mahuta does not place Haingaturua in the classificatory grade of granddaughter to Pupuke. The difference of one generation, however, on the Taruia lines is a real blood kinship. Thus Pupuke and Ravainuroro, mother of Haingaturua, are first cousins, and Pupuke, by marrying his niece (*tamahine*), came within the prohibited degrees of consanguinity. This raises the question as to whether the prohibition was waived because of the lack of women in the early period of settlement or whether the prohibited degrees were instituted later with the increased population and consequent greater scope of selection. Judging by comparison with the practice of other branches of the Polynesians it seems likely that the prohibition of marriage with second cousins was a later local development.

In the fourth generation only three other households have to be accounted for. These, however, include the direct male issue of the Pokiroa-Purua alliance in Rangisaruru and the senior Pange male line in Siku. The number of households has not increased, but rather diminished through blending.

In the fifth generation the households still number five, but in the sixth generation there is a marked increase, Matakunui having a family of seven sons and three daughters. Almost all had issue and it is for this

reason that Matakunui ranks as such an important ancestor in Tongareva. He is the eldest male in the line from Purua and Pokiroa, who cemented the earliest settlers with Mahuta's family by his first wife. The senior male line from Pange by Mahuta's second family has been carried on to Tuperekahiti, and the senior Taruia male line is represented by Tanupo. The marriages, which give the names of the second contracting parties, show that they must have been rendered possible by the early settler stock and people who accompanied Mahuta.

After the sixth generation the pedigrees reveal a marked increase in the number of marriages from generation to generation. Family groups held together by blood ties spread out from the original three centers of occupation, which were probably in the north, south, and west. The exploitation of fishing and shellfish grounds led some families to move away from the primary centers and occupy other islands so as to be nearer the sources of sea food supply. It is natural to suppose that two or more families closely allied by blood would move off together for mutual fellowship and assistance. Each small group occupying an island established a secondary center of population and a local blood kinship group. At first the ties with the older centers would be kept up by visits for intercourse and a share of the coconuts they had planted. The migratory families, however, would take nuts and plant them in their new homes. In the course of time each of the main islands became permanently settled and planted with coconut trees. As population increased, each island group developed its own interests locally, and ties with the primary centers and other islands became weaker although they were maintained in sentiment through the preservation of the family pedigrees. Though Polynesian culture is marked by communal cooperation in activities that require more than individual effort, the right to personal property was well recognized and maintained. When a family established its household on a piece of land and was left in undisturbed occupation, it established the rights of ownership to that land. The members of the family were entitled to the fruit of the coconut trees that they had planted on the land, and boundaries between food lands developed by mutual arrangement in the process of growth of population.

It is probable that in the earlier stages of settlement the families moved about freely to exploit the sea food supplies of the atoll. The importance, however, of the coconut as the main vegetable food led to fixity of residence in the vicinity of the lands planted. The planted lands of a family were termed *kainga*, which carries the meaning of the place where *kai* (food) is obtained. As the lands near the primary centers of settlement were planted by the earlier families, other families planted farther away. The need for protecting private property influenced the owners to take up their residence

on their food lands, and the term *kainga* came to include both residence and food lands. The influence of the coconut trees in determining local residence cannot be overemphasized.

Although the need for protecting the coconut crop led to the establishment of scattered households rather than of villages, the process of distribution must be visualized as the gradual spreading out from separate primary and secondary centers of occupation. The method of spread from secondary centers is reflected in the naming of the islands.

The boundaries between islands and the territorial divisions of the larger islands were held rigidly, and so, probably, were those of many of the districts. The island upon which the village of Omoka is situated is divided into two divisions named Omoka and Motukohiti, but there is no one name for the whole island. The largest island comprises the divisions of Mangarongaro and Hakasusa without a combining name. The same applies to Tautua, Te Mata, and other larger islands. This uncommon system of nomenclature is easily explained when the process of spread of population is considered. When a small family group settled in a particular place they gave that locality a name. As they spread out in the course of time, names were given to districts occupied. In smaller islands peopled from one center the first, or oldest, name was used to include all the districts and, incidentally, the whole island. In the larger islands secondary centers were established at more than one place. Thus, in Omoka and Motukohiti one center of population in the northern part of the island was given the name of Omoka; another center was established in the southern part of the island by a family group a little removed in blood from the settlers at Omoka. Judging by analogy, the local center in the south must have been named Motukohiti. As the population from the two centers spread out they named the successive districts occupied. In the course of time the two spreading groups met at some intermediate part of the island, and as the result of quarrels and mutual arrangement, a boundary was established between the two groups of families whose interests were controlled from different centers. The districts north of the boundary had more closely allied interests through their closer blood kinship, and the northern districts were thus grouped together under one divisional appellation for which they took the older name of Omoka. Similarly, the districts to the south were grouped together under the name of Motukohiti. In the larger land areas of volcanic islands boundaries are usually selected from natural features such as streams, rivers, and ridges, but in the low flat islands or atolls there are no such natural features. The boundary between Omoka and Motukohiti was, however, located at a rocky part of the island, and as the landholders on either side were jealously watched lest their planting of coconuts should approach too

near the boundary, a wide gap of unplanted land extending from sea to lagoon constituted a very distinct boundary. From the shores of the lagoon the wide gap destitute of coconut trees is distinctly visible, and from a distance a stranger would imagine that some natural gap in the land surface separated two well-planted islands. Lamont (15, p. 169), approaching the boundary from the Motukohiti side remarked on it as follows:

After about half an hour's walk in a northerly direction, we arrived at a rugged, rocky ground—a perfectly barren space. The natives now urged me to return, and endeavored to make me understand by signs that if I passed a certain boundary I should be killed. At the same time, the little girl and one or two women began to cry, and as I had no wish to offend their prejudices, I consented to return. I subsequently found that this was the boundary line between Omuka and Mutagohichè, two divisions of an island some four miles in length, which were at war with each other.

I asked Tupou Isaia why the land on either side of the middle line of the fairly wide bare space had not been planted to narrow the boundary line without obliterating it. He stated that when the custom was started any coconuts planted were immediately rooted up by the opposing side. An attempt at planting was regarded as a declaration of war, and fighting ensued. Even after years of missionary influence the fear of encroaching on the boundary area still remains deep-seated.

A divisional boundary created between distinct groups is as effective as any natural physical boundary, and for all practical purposes the two divisions remain in exactly the same position as two distinct islands. Neither division had conquered the other to the extent of uniting the two divisions under one chieftainship and under one name.

In Lamont's time (15) Opaka ruled over both Mangarongaro and Hakasusa, for he had conquered Hakasusa. The two divisions were on the same island and became allied. After Opaka's death, however, the claims of two rival chiefs to his title were diplomatically settled by awarding the chieftaincy of Mangarongaro to one claimant and the chieftaincy of Hakasusa to the other. The divisional names had become so established that even if the two divisions had continued under one chief, it is extremely doubtful whether or not a common name would have been applied. From the Tongarevan point of view there was no need for such a procedure. Similar unplanted boundary lines exist between the divisions of all the larger islands.

In the smaller islands settled from one center or by closely related families districts were formed and the islands received common names that included all the districts. The uninhabited rocky islands received names as definite localities that are referred to not only in ordinary conversation, but in relation to activities that may concern them.

The people inhabiting the island divisions of Omoka, Motukohiti, Mangarongaro, and Hakasusa, and those inhabiting such smaller islands as Te Puka,

Motu-unga, Tokerau, and Ruahara, regarded themselves as distinct communities which correspond to the tribes of other Polynesian areas. They fought against each other under their territorial designations and made alliances for defence and attack. Thus, in Lamont's time Te Puka was head of a confederation of the southern territorial communities which extended from Tautua in the west to Atutahi in the east.

SOCIAL OBSERVANCES

INDIVIDUAL GREETINGS

The reserve of Western culture, marked even by speech avoidance until after a formal introduction, does not exist in Polynesian custom. The person who does not greet another on meeting with a salutation and a smile is likened to something without power of speech, a block of wood or a stone. It is proper etiquette to greet everyone one meets. The greeting now common is the Rarotongan "Kia orana" (May you be well). In ancient times it was customary to call out the person's name followed by a long drawn-out *ē*. Sometimes the name was preceded by the exclamation *aue*, as "Aue Mahuta ē." The greeting was accompanied by welcoming waves of the hand, termed *sarasara*, and noddings of the head. When people had not met for some time and circumstances precluded the regular community ceremonial, the greeting was followed by pressing noses.

The pressing together of noses, termed *songi* (Lamont, "shungai,") was the orthodox form of greeting between two individuals who had not seen each other for some time. It was not accompanied by the clasping of hands in the western manner, but individuals might place their hands over each other's shoulders to steady themselves. When the visitor is seated on the ground those approaching stoop down to exchange the greeting. The head may be bent slightly to the side so that the noses cross obliquely. This is merely to make sure of hitting the mark, for as the eyes are closed at the moment of approach, it is embarrassing not to make correct contact. Lamont (15, p. 135), referring to the *songi* salutation after a *pehu* (ceremony of weeping) at Omoka, states: "We were examined again; our dress was regarded with wonder; and as their olfactory nerves seem to be particularly sensitive we had to submit anew to the ordeal of smell."

On pressing noses, the breath is held. The custom can, in its present form, no more be regarded as smelling than the Western custom of kissing can be regarded as tasting. The custom which still survives as the orthodox form of greeting in New Zealand is now used in Tongareva only by those who are close of kin.

Two vocal forms of farewell are used which are often confounded by Europeans. As the greetings refer to the opposite actions of going and remaining, they cannot well be combined in one form. A person calls to the visitor as he is leaving, "a hana koe" (you are going), to which he may add the polite invitation, "a hoki mai" (return again). The person leaving calls, "a noho koe, a noho" (you are staying, remain). The words are accompanied by hand and head movements expressing friendship or affection.

RECEPTION OF VISITORS

The reception of visitors was an important social event. In Western culture the civic, public, or community welcome is reserved for people of distinction. The individual meets his own relatives or friends and from day to day meets other people without in any way ruffling the smooth surface of the community into which he has penetrated, and of which, for the time being, he is an unrecognized member. Such a lack of interest is apparently natural in a community which is individualistic and in which blood kinship does not form a community bond.

Because of the kinship bond which is the basis of the social structure in Tongarevan society, a Tongarevan of any rank cannot visit a local group and enter unobtrusively. The very form of transport in traveling demands that he should have assistants to paddle his canoe. If he is a chief, he must be accompanied by fitting companions in addition to his own family. The arrival of canoes in itself attracts the attention of the community, which is interested to know whether the visit is friendly or hostile. This leads to investigations at the landing place. On landing, the visitor cannot go immediately to his nearest relative or friend. The relative of a member of the community is a relative of the community, and the guest or friend of a member bears a similar relationship to the group. The individual greetings that take place through accidental meetings at places away from the community assembly place of either cannot be observed when visits are made to the occupied territory of a local group. The visitor, after the preliminary reception at the landing place, must receive a community welcome or reception before he can mix freely with his friends or relatives.

The reception of visitors has been built up into a ceremonial complex. Some of the elements of the ceremonial may be omitted when chance meetings take place, and it appears from Lamont's accounts that the order in which they occurred varied slightly in different islands. The member of a local group who has been absent on a visit to another island was received ceremonially on his return. The full welcoming complex consists of introductory speeches, speeches of welcome, community weeping (*pehu*), in-

dividual greeting by pressing noses (*songi*), dances (*kapa* and *saka*), and the feast.

The few words that European strangers may exchange when they are introduced, or that friends may use to express their sentiments on meeting after separation become in Tongareva a regular set speech accompanied by gesticulations that may even take the form of a short dance. The speech is complimentary, expressing gratification at meeting and referring to the blood kinship and ancestral ties, when they exist. This procedure may take place when persons meet away from the group meeting places. Thus, Lamont (15, p. 190) recounts that as he was returning to Mangarongaro from a visit to Motu-unga:

... we met several people, who, on seeing us, raised a shout, and, waving their spears, performed the "hai." One of them, stepping forward, delivered a long complimentary speech. This must be done before they salute you, no matter how glad they may be to see you. No undignified haste of greeting can be sanctioned in Te Pitaka.

The "hai" mentioned is an incantation corresponding to the Maori *karakia* and was accompanied with movements of the legs, arms, and of the spears with which the people always went armed in premissionary days.

The introductory speech was also made from the shore by the home chiefs before the canoes of visitors were allowed to land. Lamont (15, p. 177) observed this custom on his visit to Motu-unga: "Before our landing, some men came to the edge of the water and made a lengthened speech, I presume welcoming me to their shores, accompanying it with a grotesque and rather undignified dance, during which, however, they maintained great gravity." The speech was one of welcome, as Lamont's impending visit had been announced previously to the people. When a number of canoes visited an island the introductory speeches were conferences. The raiding of coconut plantations had become so rife that any visit of canoes had to be explained before visitors were allowed to land. The canoes, therefore, drew up within hearing distance, and the local chiefs made their welcoming, conciliatory, or hostile speeches. The chiefs in the canoes exchanged their greetings and explained the object of the visit. When the visitors came from a friendly island to visit relatives, on the conclusion of the speeches a camping place was assigned to the guests. If the visitors came from a hostile island there was a long discussion. When the Te Pukan fleet drew up before Motu-unga the speakers explained that as they were visiting a neighboring island they had come on to see (*hakakikite*) Lamont and that after pressing noses with him they would go on. Lamont complied by wading out to the canoes, and the visitors passed on without landing.

On another occasion, when the Motu-ungan fleet visited Tautua with the object of raiding the coconut groves, a long discussion took place be-

tween the chiefs of the canoes and Lamont, who stood on the shore representing the Tautuan people (15, p. 293). The Motu-ungan people were Lamont's greatest friends, and the chiefs made speeches of greeting to him. Lamont then explained that Tautua had recently been raided, that the people were poor in coconuts, and that he would protect them. The Motu-ungan chiefs professed their friendly intentions and asked to be allowed to land to meet Lamont's new friends. The Tautuans had no confidence in the profession of friendship, and their chief, Mahuta, begged Lamont to take them to the landing place on the neighboring island. After much discussion the leading chief, Taharua, with his crew, was allowed to land. After saluting Lamont, Taharua pressed noses with Mahuta. The two parties sat beside each other and no ceremony other than the evening meal took place. Houses for sleeping were assigned to the party. The next day, after the morning meal, Taharua and his men departed in their canoes without having pulled a single coconut. The forced reception thus described was characterized by the introductory speeches, pressing noses, and meals, whereas the weeping and dancing which accompany the full friendly ceremonial were omitted.

The speeches of welcome proper were delivered when the people had taken their places for the weeping part of the ceremony. At Mangarongaro the speeches were given after the *pehu* weeping was over and before the pressing of noses took place. This order follows the New Zealand usage in the *tangi* weeping ceremony. At Motu-unga, however, the chiefs made their speeches of welcome first, after which they approached and pressed noses. A mat for Lamont was then placed between the seated rows of women, and the *pehu* weeping proceeded. (See 15, pp. 303, 304.)

The introductory and the welcoming speeches are made by the men who are chiefs, but Lamont (15, p. 190) relates that after a *pehu* ceremony at Mangarongaro his adopted mother made a speech to him after her husband had done so. Probably her relationship gave her the privilege of departing from the usual etiquette. Apart from public occasions, the women made short remarks of welcome which would be little more than set phrases that usage had established as correct form.

The intrusion of Western culture has caused the abandonment of many social customs used in the reception of visitors. When the schooner *Tiare Taporo* berthed against the Omoka wharf on my arrival at Tongareva, Pa, the oldest man of the community, addressed a speech to me from the wharf explaining that according to ancient custom he could not approach me until the proper ritual had been observed. He then proceeded to recite a long incantation, after which I landed, and the people came forward to shake hands. The shaking of hands in Western fashion has displaced the old

custom of pressing noses, and Lamont's remarks (15, p. 131) on the lack of acquaintance with hand-shaking are interesting. When he held out his hand to some people he met they held out their hands with the back, instead of the palm, to his grasp.

The hands are waved in welcome or farewell, and the waving is accompanied by the appropriate greetings. The extension of the hands with the quivering of the fingers (*salasala*) is a common movement in dances. Lamont refers to it as a greeting or farewell. He evidently caught a more sibilant sound in the initial *s* and heard an *r* sound instead of *l*, for he spells the word as "sharashara." It corresponds to the Maori method of flexing the fingers on the palms as a gesture of greeting.

The *pehu* custom of chanting, weeping, and cutting the flesh with shells resembles the Maori *tangi*. I did not see the ceremony, but Lamont's account (15, p. 124) from first-hand observation supplies a vivid picture.

On the conclusion of the dance, after some further preliminaries (for I noticed everything done required discussion) they seated themselves cross-legged on the ground in two rows, the men arranging themselves in two lines behind the women. The same low, mournful chant or wail that I had heard in the night was then commenced, accompanied by a clapping of hands in slow time. The women shook their heads in a mournful way, by no means reassuring, as they looked at us, and while their song continued tears fell from their eyes. Their voices, before low and plaintive, now rose to a piercing and unearthly yell, and the hands were clapped more quickly and violently, an act to which they were stimulated, by sundry pokes behind from the men's spears. The men themselves also now joined in with their deep voices, and, strange to say, they too commenced crying. The women became so excited that they began to cut their arms with small clam shells, which, in the midst of all their distress, they had been leisurely sharpening on stones for the purpose. The more they cut, the more they screamed, with the most discordant sounds, the men also joining in and accompanying them in this outrageous proceeding. Before they ceased, their legs, arms, and faces were streaming with blood, and as they wiped away the ever-flowing tears, now mingling with the red stream on their cheeks, their visages became perfectly horrific.

The Tongarevan *pehu* so closely resembles the *tangi* custom still actively used by the Maoris that it is extremely probable that both customs have a common origin and that the same psychological factors are present in both.

The customs originate in the feelings of sentiment connected with the reunion of blood relatives. When a kinsman returns to his family or local group his reappearance awakens various sentiments. As he is not merely an individual, but a member of a closely related group, all the members of the group must assemble to express their feelings. He cannot mix with his people to exchange individual greetings until he has been received by the community. His arrival awakens the memory of his relatives who have passed away during his absence, and the sorrow connected with their loss to the community is reawakened. The visitor must pay his tribute of tears to the departed, and the whole community shares in the sorrow. The state of feeling that occurred at the time of death is repeated, for this is

the first opportunity that the traveler has had of expressing his grief with the community. Appropriate laments and dirges are chanted, and the mournful words, the tune, and the whole association of ideas finds physiological expression in tears. Once the lachrymal glands have been stimulated to action, the flow increases. The sentiment of grief continues to increase in intensity and finds vent in the vocal expression of wailing as well as in physical movement. In New Zealand the need for further physical expression takes the form of quivering the fingers and in Tongareva the clapping of the hands increases in rapidity. The climax is reached when the flesh is cut so that the blood flows. The native culture did not impose any inhibitions on the public demonstration of grief, but rather encouraged it as a natural and appropriate line of conduct. For the native the sentiment and grief caused such oppression within the breast that the flow of tears and physical violence to the body were the only means of relieving the psychological tension. The mourners derived satisfaction also from their public expression of grief, and the greater the flow of tears and the outward expression, the greater the psychological satisfaction.

The sentimental relationship between the individual and his family or family group also exists between separated groups. The common ancestral tie has been strengthened further by marriages of a later date than that of the common group ancestor, and when the groups meet, members in each group recognize kinsmen in the other group, and their weeping is directed toward one another while their respective groups support them. In the general sentiment aroused each group forgets old grudges and animosities, and the custom, by thus emphasizing common ties of blood, serves a useful purpose in maintaining peace. The constant exercise of such expressions of sentiment caused the complex to become set as a custom for the reception of visitors, even from groups in which the blood tie was far removed. While still a real expression of sentiment among related groups, the custom became more artificial among distant groups and was incorporated as orthodox ceremonial in the social structure. During the early part of Lamont's stay at Mangarongaro visitors from neighboring islands were constantly arriving to satisfy their curiosity, and all such visits were marked by the performance of the *pehu* ceremony.

The ceremonial part of the custom is observed between two hostile forces and they make a temporary peace. Thus, when an armed force from Omoka visited Mangarongaro (15, p. 135), the combined forces of Mangarongaro and Motukohiti met to resist them. After much discussion peace was made, and the *pehu* gone through by both parties. Another ceremonial occasion is seen in Lamont's description (15, pp. 121-125) of the formal reception of the shipwrecked crew of the *Chatham*.

When a community welcome is planned, it is not correct for individuals to meet and indulge in *songi* (pressing of noses) until after the community greeting is over. Lamont was puzzled by the actions of people who avoided him on his return from his trips, as shown by his remarks after his first trip to Motu-unga (15, p. 190):

I was astonished at meeting no more people, and equally so at getting a glimpse of a few running in haste before me, as if in fear of my approach; but, on my arrival at home, I found they were all congregated there. There was a great assemblage already, and more were arriving. They seated themselves quietly in a row as they came, apparently without noticing me, or, if they did, it was only by a glance and a little wave of the elevated hand. I would have advanced to shake hands with my honored parents; but they retreated from me, and, pointing to a mat, said, "na hokè ratha" (sit down there), which, they hastily repeated until I had taken my place. Indeed, had I been acquainted with the etiquette of Te Pitaka at the time, they should not have been compelled to speak to me at all, as they were not accustomed to do so on such grave occasions. A *pehu* was again performed, which ended in the usual crying, scratching, and cutting. Speeches were delivered in the gravest manner by my father and mother, who approached, stooped, and kissed me. I had then to pass along the double line of persons seated, to be kissed by them all in grave silence, whilst at the same time they shook their heads and waved their hands. If I had risen from the dead, our meeting could not have been more melancholy.

This is a good picture of what still exists in Maori society—avoidance until the community greeting is over; the weeping and chanting of dirges, speeches of welcome by the home people (replied to by the visitor); and finally, the individual pressing of noses. Lamont embarrassed his adoptive parents, not so much by causing them to speak as wanting them to shake hands with him. He means pressing noses when he uses the word "kiss" and the phrase, "na hoke ratha," should be *noho ki raro* (sit down). Lamont made a similar mistake regarding the avoidance before the *pehu* on a later return from Motu-unga, for, as the people again hurried away from him to the community meeting, he states (15, p. 315): "I saw the inmates hastily flying before me, instead of offering the welcome with which, on ordinary occasions, I was received." He did not realize that his return was not regarded by the community as an ordinary occasion.

The *pehu* is still used in a modified form, but the term more commonly used at present is *seva*. The people sit and wail, clapping the hands with a downward circular motion. Blood is drawn from the face or body by scratching (*sasaku* or *kokoti*) or cutting (*sau*) with a *kasi* shell.

DANCES

The *pehu* ceremony was associated usually with two types of dance, the *kapa* and the *saka*, which formed part of the ceremonial reception to visitors.

The *kapa* (Lamont, "capa") was performed for me at Omoka under the direction of Pa. The women were seated in two rows a little apart and facing each other, with the men behind in rows and erect as in the *pehu*

ceremony. A chant was sung by all, and time was kept with various movements of the hands and arms, all in perfect unison. The dance was similar to the Samoan *siva*, except that the women did not change position, as in the *siva*. At Mangarongaro Lamont (15, p. 316) saw a more elaborate *kapa* in which two rows of seats made of hala (Tongarevan, *hara*) stems and branches were utilized by the men. The men had festoons of leaves hanging across their shoulders and a green coconut leaf in each hand. The chiefs wore long belts plaited at the waist and hanging in a fringe to the knees. The material of the belts, or rather kilts, was a bark of light color. Folds of broad sennit were bound around their heads. Each chief carried a long wand with a loop at the end to check those who were too far forward or to bring up those who were too far back by throwing the noose over their heads and pulling them forward. The women sat in corresponding rows before the men and sang a low chant to which the men kept time with a slow motion of the coconut leaves. The chiefs stood at intervals in the space between the rows and directed the dance. Lamont remarked on the rage of the chiefs and their recriminations and blows at the men who got out of place at the commencement of the dance. The dancers were arranged in straight rows. The term *kapa*, applied to the whole dance, is the term used by the Maoris to denote the straight rows of people in the posture dances and war dances.

The *saka* (Lamont, "shukai") resembles the *tarekareka* dances of the Cook Islands and Manihiki. In the dance that I saw the performers were arranged in a column of fours with males and females alternating in each four. The dancers stood upright, but when the dancing commenced they bent the knees slightly. Rapid movements of the hands and feet, with quivering of the knees, were indulged in, while changes were effected by facing right, left, or about at intervals. The time was given by a drum in modern fashion, but in pre-European times neither skin drums nor wooden gongs were known. The dance was more a women's dance, though under modern conditions men join in. Lamont (15, pp. 123, 124) describes it:

When dressed we were again marched off to a clear space near the beach, where the women were congregated. These, after some hesitation, as if from bashfulness, stroking down their "titches," placed themselves in position opposite to each other, and began a very absurd dance, though (unlike other islands of the South Seas) there was nothing indecent in it. Raising one hand in the air and lowering the other towards the ground, they waved them rapidly, at the same time (after scraping the ground with their feet to make it smooth) rising on their toes, with their knees partially bent. Then, looking wildly sideways at each other, they commenced a quick-step, beating the ground as rapidly as they could hop from one foot to the other, changing their position occasionally, and elevating now the right and now the left arm, accompanying these gestures with a low guttural sound not unlike that made in calling chickens. This dance, called the "shukai," is performed on all public occasions, and much admired, though the fair dames sometimes require a little pressing to commence.

The *saka* is performed at the commencement of community affairs of more than usual concern. It is part of the celebration when different territorial communities meet together, or when a canoe is about to depart on a voyage of moment. When people emerge from a period of mourning, the phrase used to indicate the end of the gloom is, "kua saka te tangata" (the people dance). The dance described by Lamont was performed before the *pehu*, but on another occasion (15, p. 144) the people of Te Puka danced after the *pehu* had taken place. The word *saka* corresponds to the Maori *haka* and resembles it in being a posture dance used at the commencement of community activities of importance, including funerals.

The *tumu*, lately called *taki*, was a dance in which men or women, or both, formed a circle. It was simply a variation of the posture dancing (*tare-kareka*) of the Cook Islands. Lamont (15, p. 144) saw it danced after the *pehu* by men of Te Puka, who formed a circle with their hands joined.

Another dance described by Lamont (15, p. 317) was more like the historical pageants enacted in Manihiki and the Cook Islands. The event enacted was the wrecking of the *Chatham*. A framework was erected to represent the ship. The ship was provisioned and manned with a crew. A woman pretended to see the visitors for the first time and alarmed a group of sleeping warriors, who attacked the ship and finally carried off the provisions. A number of the boys ran about on all fours making a noise like dogs. They were pursued by men with spears, who in turn fled when the dogs turned and barked at them. The actors could scarcely play their parts from the amusement they derived from their own performance. The landing of historical ancestors in their canoes, or outstanding events in traditional history, were enacted in a similar way. The importance of Lamont's account is that it proves that such dances were performed in Tongareva in premissionary times. The "ship dance" was acted by the people of Manga-rongaro as part of the welcome to Lamont on his return, and also for subsequent visitors.

HOSPITALITY

Hospitality prevails in Tongareva as it does in other parts of Polynesia. In Tongareva, owing to the heat and the lack of cooling streams, the offer of drinking nuts is a necessary act of hospitality. The host on one occasion is the visitor on another. The first thing a Tongarevan does when a visitor enters his house is to give him a drinking nut. He often has little else to offer, but he realizes through experience that there is nothing that will be appreciated more keenly by his visitor. If he has not a stock of husked nuts in his kitchen, he sends a boy up a near-by palm, and a nut is speedily husked. The custom has become so firmly established that even the foreigner

dwelling for a brief time in Tongareva received this practical attention. A neighbor gathering his stock of nuts brings back some extra nuts which he sends, ready husked, to the stranger within his reef. When I left Omoka on H. M. S. *Veronica* the people of the village sent out a boatload of drinking nuts as a parting act of hospitality.

In olden times when people from one island visited another they took their food supplies already cooked with them, but it was customary for the local people, after indicating the place where the visitors could camp, to supply them with drinking nuts. If the visit was prolonged, a serious inroad was made into the local crop of coconuts; but although the unwilling hosts might chafe at the depletion of their food supplies, there could be no suppression of hospitality without a loss of prestige. The unwilling prolongation of hospitality was also actuated by political motives. Personal ownership of coconut palms was recognized, and anyone discovered plucking coconuts from a tree not his own was regarded as a thief. Under such conditions it was preferable for the owners to supply the nuts to dangerous guests, rather than to risk guests' helping themselves and so creating a cause for war.

Hospitality also includes the giving of food, or the *warusanga* feast. (See p. 119). The old-time hospitality still flourishes in spite of contacts with Western customs.

The giving of presents is a concomitant of hospitality and follows naturally after entertainment with food. The following is the correct formula:

Ei urunga atu ki nga tupuna, e rima
tahi mai ai;

Ei urunga atu ki nga matua, e rima
tahi mai ai;

Ei urunga atu ki nga tungane, e rima
tahi mai ai;

Ei urunga atu ki nga tuahine, e rima
tahi mai ai;

Ei urunga atu ki nga tamariki, e rima
tahi mai ai.

For the purposes of union with the
grandparents, that they may share;

For the purposes of union with the
parents, that they may share;

For the purposes of union with the
brothers, that they may share;

For the purposes of union with the
sisters, that they may share;

For the purposes of union with the
children, that they may share.

The enumeration of the relationship terms indicates the basic idea in the giving of presents, to promote unity by stressing the blood kinship. The sentiment expressed by the present not only extended to the recipient, but also to his whole blood kinship group so that all had a share in it, as expressed by the phrase, "Kia rima tahi mai ai."

SICKNESS AND DEATH

The treatment of sickness was in the hands of the priests, known as *taula*, who used incantations addressed to particular gods which resulted in

the expulsion of the disease. No information could be obtained regarding the formula used or the particular gods invoked. Some priests had more than a local reputation and were sought after by reason of their superior powers. Lamont (15, p. 272) states that a priest living in Omoka had such a reputation that Opaka, *ariki* of Mangarongaro, risked his life in venturing among his hereditary enemies to seek treatment. The priest's house was tapu, and it was only after being safely conveyed into its precincts that Opaka's life was safe from attack. Patients from all over the atoll sought this particular priest, for, though his incantations were the same as those used by the other practitioners, his greater reputation enabled him to effect more cures. The Omoka physician conducted his treatment within his own home. For his services the physician received fees.

At the marae the assistance of the gods was invoked. Lamont (15, p. 268) relates that one invocation was concerned with healing. He tells of an old chief of Motu-unga, who, after various incantations had been recited, prostrated himself before the sacred house of the marae. The priests brought out the material form of the god in the shape of a bundle of feathers and, after reciting various incantations, struck the patient three blows with the god. The patient subsequently recovered.

Washing in fresh-water pools was much resorted to for curing sickness and skin infections.

It is not clear whether or not herbal remedies were used. In a system of medicine which depends upon the exorcism of the disease by means of prayer the mind is not turned toward the seeking of material remedies. The one definite remedy used was the *roro*—a beverage of coconut cream, the purgative powers of which were appreciated. Pa informed me that as a purgative *roro* was infinitely superior to anything the European doctors had ever given him. He stated that it was so efficacious that after taking it a person's eyes were sunk in his head. The liberal use of *roro* at the feasts was recognized as having the double use of giving pleasure as a beverage and of correcting the effects of overeating.

Of actual diseases, leprosy and yaws were probably present in ancient times. Today a doctor from the Health Service at Rarotonga visits the atoll when opportunity occurs. Remedies for the ordinary ailments are left with the Resident Agent, who administers them when occasions arise. During my visit here I had frequent sick parades, but the cases were mostly of minor ailments, many being merely requests for purgatives, the efficacy of *roro* being disregarded for the more easily procurable European remedies. I saw no cases of elephantiasis, and both hookworm and yaws have been eradicated by the Health Service. More cases of leprosy occur here than in any other part of the Cook Islands administrative territory. Formerly the

lepers were isolated on Motuunga, but recently they have all been transferred to the leper station on Makogai in Fiji. In 1929 thirteen lepers were removed to Fiji.

Death is a calamity after which the community gathers to express its grief. The relatives, in addition to weeping and wailing, express their grief by such acts of violence as beating their heads against wood or stone and throwing themselves on the ground. The grief is real enough, but exaggerated outward show is expected of those who are near of kin. The corpse is laid out, and the husband or wife embraces it with lamentations, and both are covered up with a mat for the immediate period of intense mourning. The community gathers and goes through the *pehu* ceremony of wailing and cutting the flesh.

When the first outburst has subsided, the body is rubbed with coconut oil. According to Lamont (15, p. 208), a priest took a young palm branch, formed to represent the human body, drew it over the body from head to foot, and shook it, repeating the farewell formula, "a hana" (go). Two women holding a sleeping mat by opposite corners advanced chanting a dirge and went through a ceremonial dance akin to the *saka*. As they concluded with the farewell words, "a hana," the mat, which formed a shroud, was laid before the corpse. The corpse was then laid upon the mat. The personal possessions used by the deceased before death were collected near the corpse. Lamont states that this was done in order that the deceased might have the same comforts in the world to come as in this. This was inference on Lamont's part, and the procedure was more likely to have been motivated as it is in the similar custom in New Zealand, where the objects are tapu through death. They would not be used by the relatives, and the correct procedure was to get rid of them with the corpse. Personal drinking cups, pearl shell graters, and perhaps a fishhook were placed on the mat with the corpse, and the edges of the mat were sewn together with sennit braid, a pointed stick being used to make holes through the mat. The bundle was made secure by lashing turns of sennit around it.

Special small houses of mourning (*hare pehu*) were constructed. In one of these the corpse was suspended from the roof and the husband or nearest male kin retired to be near it for a period of seclusion. Other close male kinsmen retired into similar small houses especially constructed for the occasion. Lamont describes a visit to one of his adoptive parents, Monitu, while Monitu was in mourning for his deceased wife. The stench was so intolerable that Lamont fled without waiting to exchange the customary greeting of pressing noses that the occasion demanded.

As was customary in such community gatherings, much food was consumed. Frequent deaths led to such serious inroads into the coconut supply

that a general closed season (*masanga*) was often imposed to allow the coconut crop to recover. During the period of close mourning within the huts special food called *manga hui atua* (tapu food) was cooked by the women for the mourners. The importance of the occasion was shown by the inclusion of *roro* beverage on the menu. The women themselves could not partake of such food, so that any remnants left over had to be thrown into the sea. The house of mourning was entirely closed in except for an aperture about two feet square through which the food was passed to the mourner. Instead of wasting the extra food provided, relatives or friends were honored by being asked to partake of it. When so selected, they were supposed to contribute to the supply of coconuts.

The mourners did not usually leave the houses until evening, and then they did so by the back entrance, parting the coconut leaf sheets which closed in the walls. On leaving the houses the mourners covered their heads and bodies with huge plaited baskets made of coconut leaves. Lamont (15, p. 210) states that the mourners presented a ludicrous sight with their feet projecting below, and that they were not unlike animated haystacks. Food was not cooked near the mourning houses. As everything had to be quiet, the coconuts were even carried down the tree or silently lowered with ropes.

The period of mourning (*noho i roto i te hare pehu*) ranged in length with the status of the deceased. If the family was wealthy, the period was prolonged, as more food was available. For poor people the mourning period was shortened and the body interred. The chief mourner remained in the house with the corpse as long as three or four months, when a certain amount of dessication had taken place and the corpse was finally disposed of. Relatives secluded in the other mourning houses ended their period of mourning when they considered that they had demonstrated their grief sufficiently.

The termination of mourning was *ka suaki te mate*. The word *suaki* (Maori, *huaki*), "to open," refers to the opening up of the closed house of death (*mate*). A noise was made in the house (*ka hakasaruru te hare*) by beating it with sticks (*patu ki te rakau*).

The procedure is summed up in the sentence: "Kia inangaro kia hakakore i te noho i roto i te hare pehu, ka suaki te mate; ka hakasaruru te hare, ka patu ki te rakau" (When it was desired to end the staying in the house of mourning, the death was opened up; sound was created in the house by beating it with sticks). When the period of mourning was over the people celebrated the occasion by returning to normal conditions, expressed in the phrase, "kua saka te tangata" (the people danced).

Sometimes the dessicated body, bound in mats, was conveyed to another territory occupied by relatives. Lamont (15, p. 252) states that the wife of Monitu was taken from Omoka to Mangarongaro. Here the appearance of the corpse led to a repetition of the community *pehu* wailing, with *kapa* and *saka* dances and feasting.

The bodies of chiefs were conveyed to a marae. Lamont (15, p. 275) relates that Opaka, the *ariki* of Mangarongaro and Hakasusa, died at Omoka, where he was visiting a noted priest for treatment. The body was conveyed by canoe to Mangarongaro, where the entire population met it at the beach. The corpse was carried by four chiefs to the marae and remained there in a temporary house for a few days. While the corpse was on the marae Opaka's two favorite wives were allowed to approach the remains by crawling on their hands and knees and returning backward in the same way.

The missionary teaching since 1854 has so changed the death ceremonials that details of the ancient observances have been lost. My informants were unable to explain the use of some of the small inclosures on the marae which were just large enough for a body stretched out and which were marked by low coral slabs (*karaea*) about 6 inches high. The inclosures suggested graves, but excavation of the coral gravel failed to reveal any traces of human bones or even pearl shell utensils. These inclosures are in marked contrast to the authentic graves of limestone slabs where the bones were on the surface or just under a thin layer of gravel, and where remains of pearl shell graters (*tuai*) were common. From Lamont's account of the temporary lying in state in the marae, it seems likely either that the body was laid in a small inclosure, or that the inclosure of low stones was made when the body was laid down. A small temporary house was erected over the body without any stones to define the walls as in ordinary dwelling houses, for stones already defined position of the corpse. The corpse was afterward removed, which accounts for the absence of bones. The temporary shelter was also removed or fell into decay without leaving any trace except for the small inclosure which had defined the position of the corpse.

The bones were evidently allowed to remain suspended from the roof for a considerable time, for Lamont (15, p. 162) records that his adoptive brother, on entering a hut on Hangarei, sorrowfully kissed a carefully sewn up little basket suspended from the roof. Later Lamont secretly examined the basket and found a little roll of fine matting sewed up in it. The roll contained a little human skull and the mouldering bones of a young infant.

Lamont (15, p. 275) states that Opaka's body, after exposure on the marae, was removed to his own house in Hakasusa, in which it was suspended in mats from the roof. One or two of his wives remained in the

house at all times, "whilst several families throughout the island shut themselves up in mourning."

The final disposal of the body after the period of mourning had elapsed was by interment in one of the graves inclosed with limestone slabs or on the marae. The small inclosure on the Rauhara marae (fig. 31, *b*) contained skull and long bones. There were no signs of ribs or vertebrae, and as the inclosure was only 5 feet by 4 feet, it is evident that the whole body was not laid out in the inclosure in extended position. After decay and dessication the skulls and long bones were collected and placed in the marae inclosure. Respect for the feelings of the Tongarevans prevented the making of any extensive excavations.

MYTHS AND RELIGION

THE GODS

The only information obtained regarding a creation myth was contained in the introduction to a genealogical recital. (See p. 21.) Descent is referred back to the region of the heavens and to "the line of Atea." The incantation concludes by referring to "te aoanga a Atea ma Hakahotu" (the creation of Atea and Hakahotu). Atea and Hakahotu are thus regarded as the primary parents from whom the earliest stock in Tongareva takes its origin. Atea means light, and the space above the earth which extends upward to the star-studded sky. Hakahotu means literally, "to cause to take material form," and in the Tongarevan mind is referred to the solid earth. Tupou Isaia held that they represented exactly the same conception as the Maori primary parents, Rangi (Sky-father) and Papa (Earth-mother). Atea represented the male principle and Hakahotu the female. Their union resulted in an *aoanga* (coming forth into the *ao*, or world) of eleven offspring, Tane, Tangaroa, Te Kapua, Mauri, Rongonui, Tahaki, Te Porourangi, Te Tou, Maru, Hakapeka, and Putahi-aitu. Tane, Tangaroa and Rongo also appear as sons of Rangi and Papa in New Zealand, and of Vatea and Papa in Mangaia, thus showing the identity of the primary parents in the three regions. In both New Zealand and Mangaia the members of the first generation of offspring from the primary parents were regarded as gods. In New Zealand they numbered as many as 70; in Mangaia they numbered only 6. Tane, Tangaroa, and Rongo were definitely regarded as gods in the neighboring Cook Islands and Society Islands, and also in distant Hawaii. The attitude of the Tongarevans to the eleven children of Atea and Hakahotu is not clear. Pa, in relating the story of the slaying of Tonu, who killed his own wife, Sokoau, stated that the avenging brothers were protected from interference by Tonu's people through the *manamana* (power) of

Tangaroa and Tane. Supernormal powers are thus attributed to them. On the other hand, the names of the four gods who were invoked by the priests do not coincide with any of the eleven children of Atea except for Rongo, who, however, appears under the name, Rongo-poa, and not Rongo-nui.

The name, Tahaki, one of the offspring of Atea and Hakahotu, is the same as that of a widely known human ancestor who appears in the pedigrees of other Polynesian areas at a time much more recent than that of the primary parents. It is likely that in the assembling of disjointed fragments of myth and tradition, Tahaki has been post-dated.

The human stock is derived from Te Porourangi. (See p. 18.)

The functioning gods enumerated by my informants are four: Kaveau, Te Maui, Matangi, and Rongo-poa. These gods were stated to be invisible (*e atua kitea kore*) except to the priests (*e kitea e na taura*). To make up for this invisibility, the priests (*taura*) made material representations of the gods in coconut leaf, feathers, wood, or human hair.

The coconut leaf representations were evidently made for the single occasion on which they were used. In describing the marae ceremony at Mangarongaro Lamont (15, p. 122) says that three small branches from a young coconut tree were plaited into a shape resembling a man. After use they were thrown away on a rubbish heap. A Tautuan informant stated to me that coconut leaves were plaited to represent roughly a human form, and that these were hung over some of the upright pillars of the marae during the ceremony. In speaking of the various things made from the coconut palm Lamont (15, p. 155) says: "The images of their gods are also made from this, to them, most invaluable tree." As he does not describe any image made out of coconut wood, it is to be presumed that he was referring to the coconut leaf representations.

The feather form of representation is described by Lamont (15, p. 180) as follows:

After an extra quantity of yelling and dancing, an old priest entered the mara-house, and brought forth a long stick, with an immense bundle of feathers and other things tied at one end, like a huge duster or mop. This he held aloft in fear and trembling, whilst he uttered some incantations, striking it, not against a stone, as the leafy gods were struck on a former occasion, but against the back of the other officiating priest. The broomstick or mop was, in fact, the representative of one of their great leading gods, of whom there are four; two good and two bad. The two good gods give life, and all that is necessary to its preservation—gifts which the other two are constantly endeavoring to counteract.

Lamont subsequently saw the feather god used in the treatment of sickness on the marae at Motu-unga.

The wood and hair representation is also mentioned by Lamont (15, p. 181): "One of the amiable spirits is married and I even saw his spouse at

a deathbed scene, in the form of a piece of wood, with a lock of human hair fastened at one end."

Lamont's statement that there were four gods agrees with the information obtained in the field. Of these, Kaveau was evidently one of the bad gods, for he was appealed to by warriors to weaken their enemies. The warriors' invocation was, "Kaveau e, suia te manava o———" ("O Kaveau, sweep away the heart of ——"). The name of the enemy was mentioned, and if Kaveau inclined his ear to the invocation the courage of the enemy was so weakened that he easily succumbed in battle.

Rongo-poa is listed by Lamont as one of the good gods, for he was associated with the production of food. His sign was the large *kai* moth. If the moth appeared flapping its wings in a manner that suggested the carrying of a heavy burden it was the sign of a plentiful harvest (*tarutaru*) of coconuts. The people, on perceiving the sign, called joyously, "Teia a Rongo e te tarutaru" (Here is Rongo with a plenteous harvest). As Rongo, the brother of Tangaroa and Tane, appears in New Zealand, Mangaia and elsewhere as the god of food, it is clear that Rongo-poa is another form for Rongo-nui. No information was obtained as to the functions of the two remaining gods, Te Maui and Matangi.

The definite use of the feather representatives on the Motu-ungan marae leads to the conclusion that the plaited coconut leaves used on Mangarongaro marae were also representatives of the gods. The plaited green coconut material was not kept, whereas the more permanent feather representations (and probably the wood and hair forms) were preserved in the sacred houses (*hare hui atua*) on the maraes.

The older primary gods, such as Tangaroa and Tane, were succeeded by the four gods in active use, of which three were later creations whose influence was purely local. The creation of later gods is characteristic of Polynesian culture, and the loss of function of the older gods in Tongarevan culture is in keeping with the confusion in their myths and traditional history which may be attributed to the lack of scholars and priests among the early settlers.

RELIGIOUS PROCEDURE

COMMUNICATION WITH THE GODS

The four invisible gods were seen (*kitea*) by the *taura* priests, but the idea conveyed by the word *kitea* (seen or found) is that the priests officially established communication with the gods. The priests made material representations of the particular gods which the people could see, and which the priests could use in ceremonial procedure.

Though the priests controlled the means of approach to the gods on the more important occasions, there were times when a small group, or an individual, had to deal directly with the unseen powers without awaiting the mediation of a priest. For such occasions certain incantations had been composed, and it was a part of the general education to learn the correct observances with regard to the particular gods, and to commit the appropriate incantations to memory. The incantation, having been established as the correct approach, had *mana* (favor) in itself to obtain the desired end, in that its recitation acknowledged the authority of the god, and by pleasing him, inclined him to regard his devotee with favor. Individual procedure took the form of requests and propitiations, for example, the warrior's direct approach to Kaveau by means of the incantation, "O Kaveau, sweep away the heart of ——" My informants did not know whether or not a particular posture accompanied the words, and that they did not mention an offering may be taken as an indication that no offering was made.

In the propitiation, offerings accompanied the necessary incantation. Lammont (15, p. 218) describes the procedure after a successful catch of flying fish:

A certain quantity are laid aside as a sacrifice to the Spirit, and over them a lengthy prayer is said in a low voice, with the hand raised and the head bent. As the Spirit, however, does not appear to claim them, the captors dispose of them as they think proper, the women only not being permitted to eat them. A similar prayer is always said over one or more of every lot of fish caught, and a piece of the tail is generally bitten off to mark the "hiue atuas."

The ceremonial pattern here contains three elements, the incantation, the offering of a share of the catch, and a set posture while repeating the ritual. On some occasions there was the additional element of marking the fish. The significance of the laying aside of a portion of fish for the god may be interpreted through comparison with the psychological attitude toward the giving of presents in social life. Hospitality was based on reciprocity, and giving was followed in due time by receiving. After the giving of a share of fish to the god, the god would be expected to reciprocate by making future fishing operations successful. Also, the gods were angered by obvious neglect, and the failure to render a share of the fish would cause the god to render future fishing operations fruitless, and might even precipitate disaster and misfortune in other undertakings.

The services of the priest were required when the active services of the god were needed, as in sickness. The patients were treated in the priest's house or on the marae, where the assistance of the god was invoked by incantations. On the marae the ceremonial consisted of incantations, the patient prostrating himself before the sacred house of the marae and being struck on the back with the material representation of the god by the priest.

For the community ceremonials on the marae at which the priests officiated the only details now available are from Lamont's descriptions (15, pp. 120-121). Lamont was ceremonially received into the community on the maraes at Mangarongaro, Omoka, and Motuunga. The Mangarongaro ceremony is described in detail.

The whole community escorted the shipwrecked mariners to the marae, but the women and children stopped a little distance away. Four young men, armed with spears, rushed to the edge of the marae, and, facing each other, recited an incantation called a *hai* which was accompanied by movement and contortion of the features. After this preliminary the men entered the marae, but evidently remained in the front half while two priests, girded with coconut leaves, seated themselves on either side farther up toward the back of the marae, in which there was an altar made of "a heap of rude stones." Three young coconuts were placed on a flat stone before the visitors. Near the stone stood four young men decked with wreaths of green leaves. At a signal from the priests each of the two young men stripped two pieces of husk from the coconuts and ran speedily to a given point, where he deposited one piece of husk, and immediately darted back. Each got behind a marae upright near the priests. They then advanced slowly and decorously toward the priests, and after raising the other pieces of husk high above their heads, laid them down before the priests. The priests took the pieces without looking up, bent over them, and, after reciting a low hurried incantation, threw the husk with the right hand over the left shoulder. The husking of the nuts was repeated in different parts of the marae.

The whole party then moved up toward the altar. It was at this ceremony that the plaited coconut leaf representations of the god were used. Three were freshly made by a young man and handed to Opaka, the *ariki* of Mangarongaro and Hakasusa, who evidently acted as high priest. Opaka ascended the altar and seated himself before a large stone, holding the plaited coconut representation in his hands. In this position, he "... began to glance wildly round in every direction, his eyes wandering over the crowd of bowed figures before him. A trembling motion, commencing in his hands, extended through his body till every limb shook in the most violent manner, the muscles working and the veins swelling almost to bursting—a sign, as these ignorant creatures believed, that he was possessed by a spirit. After uttering a few incoherent sentences, which subsided to a low prayer, he lifted his leafy god and struck him violently against the stone before him, repeating the same process with all three. The idols, having thus done their part in the ceremony, were unceremoniously thrown aside amongst a heap of rubbish."

The three coconuts, which had been placed on the altar, were removed, and the people marched out of the marae, but seated themselves near its boundary. After further incantations the three coconuts were broken and handed to Lamont and two of his companions with signs that they were to eat them. This concluded the marae ceremony, but the whole concourse moved on to a fresh-water pool, where they splashed water on themselves with a peculiar motion of the arms, like ducks make with their wings. They then joined the women at a clear place near the beach, where the welcoming ceremony with dances and the *pehu* wailing took place. (See p. 75.)

The ceremony performed for Lamont at Omoka (15, p. 175) was similar to that at Mangarongaro except that the *pehu* wailing had been gone through the previous day. From this it must be concluded that the coconuts and the leaf representation of the gods were also used. Lamont remained behind looking at the marae stones while the men were performing their ablutions. As he went toward the beach to do likewise a woman came forward to greet him, not knowing that he had not washed, but when those who followed Lamont called, "hui atua," she fled in horror.

The Motuunga ceremony (15, p. 180) differed in that Lamont had to move the coconuts from place to place and in that the feather representation of the god was used instead of plaited coconut leaves. The feather mop was struck against the back of the other officiating priest instead of against stones.

CEREMONIAL PATTERN

From these accounts by Lamont the following ceremonial pattern may be distinguished:

1. The introductory incantation or *hai* before entering the sacred precincts of the marae.
2. The people were in the front half of the marae, and two officiating priests at the back. This supports the statement of an informant that the *arongamana* (people with authority) occupied the part near the altar (*raukava*).
3. Coconut offerings took the place of pigs and human sacrifices used in some parts of Polynesia. The casting of pieces of coconut husk with the right hand over the left shoulder by the priests, after the appropriate incantation, was without doubt a propitiatory offering to the gods. The gesture was known in New Zealand as *koropana*. I was told by a middle-aged Maori that while he was having a glass of ale with a practising *tohunga* (*taula*), the alleged priest, before drinking, dipped his right finger and thumb into the ale and flicked them over his left shoulder. The *tohunga* admitted

that he was giving a share to his familiar spirits in order that they might continue to impart power to him in the treatment of sickness. The gods thus received their recognition in the share of coconuts as symbolized by the pieces of husks, although the useful part was retained for human consumption.

4. The exhibition of the gods on the altar with incantations and appropriate procedure by the chief officiating priest was accompanied by a seizure or physical manifestation, showing that while the priest held the material representation of the god in his hands the spirit of the god had entered into the human medium. The priest spoke incoherently. In some parts of Polynesia the words uttered by the priest in this state were supposed to be the words of the god speaking from within the medium. The emotional state in the Tongarevan priest was evidently worked up voluntarily, no doubt assisted by the atmosphere of the marae ritual. In Mangaia the priest took a drink of strong *kava* beforehand to intensify the emotional condition of possession by the god.

5. The eating of the coconuts, rendered tapu on the marae, conferred status on those who partook of them and formed part of the ceremony of receiving people into the Mangarongaro community. Coconuts were the primary food of the atoll and thus formed the symbolic material used in the ceremony.

6. Ablutions to remove the tapu of the marae were necessary before those who participated in the marae ceremony could become normal and mix again with their fellows. It was because Lamont was still tapu that the women at Omoka fled from him.

THE TURTLE CEREMONY

According to Tupou Isaia, part of the turtle eating ceremony was conducted on the marae. The turtle was cooked in an oven that was situated close to, but outside, the marae precincts. These ovens, marked by broken heated coral, had by successive use in the same place become elevated and formed impressive mounds such as those seen at Hangarei (p. 174) and Motuunga (p. 159). Lamont (15, p. 182) again supplies details from first-hand observation. The turtle eating, at which he was the honored guest, took place at Motuunga. The procedure is outlined as follows:

1. Preliminary incantations. The turtle was turned over on its back on the seashore. A priest repeated some words over it which may be taken to be the preliminary incantation. The chief, Turua, then stepped forward to the edge of the water "and, in a menacing attitude, seemed to denounce someone, throwing up his arms, and vociferating at the top of his voice, as if threatening an imaginary being at sea." Lamont explains the action by

saying that the turtle had a spirit which had been driven out by the priest and was threatened with vengeance by the warrior if it attempted to return. Such an explanation does not seem compatible with the usual Polynesian attitude toward food. In New Zealand, before preserved pigeons were partaken of, a chant was recited in a loud voice to return the life-principle (*mauri*) of the birds to the forests from whence they came and thus to protect the supply of birds from depletion. It therefore seems from analogy with custom in another branch of the Polynesian race that the life-principle of the turtle was being returned to the sea that the supply of turtles might continue undepleted.

2. Marae ceremony. The turtle was conveyed to the marae and, after a few ceremonies, was beheaded and disemboweled. The "few ceremonies" are not described, but it may be assumed that they consisted of appropriate incantations and the subsequent offering of some useless part of the turtle to the gods.

3. Cooking. The cooking took place on an elevation of stones, probably the raised oven outside the Kirihuri marae on Motuunga. Lamont states that the turtle was sacrificed to the gods, but this interpretation is based on a foreign concept of burnt sacrifices. The turtle was cooked for human consumption, as the gods had already received their share in the offering which, it may be assumed from comparison with the coconut ceremony, had been made on the marae.

4. Eating. The turtle cooked in its shell was placed on a mat in the gravelled space which served as the community meeting place. The turtle was cut up into small pieces within the shell.

Lamont and three chiefs sat upon the mat for the turtle eating, while not far away the people formed a large circle around them. The three chiefs selected the most tempting pieces of turtle and tried to feed Lamont, who objected and was allowed to help himself. Noting that the chiefs watched him hungrily, Lamont offered them pieces which were accepted and devoured while the people made flattering comments on his action of sharing with others. Thus encouraged, Lamont extended his generosity by throwing pieces to the wives of two of the chiefs. The women, however, sprang up and fled, shouting "*hui atua*" (prohibited). The husbands of the women held Lamont's hands, shaking their heads and repeating the words "*hui atua*."

The turtle was regarded as of great importance and, in some parts of Polynesia, was monopolized as food by the high chiefs. In Tongareva its importance was recognized by the special marae ceremony, which not only rendered it *hui atua* to women but probably restricted its use to the priests and chiefs. When there were large catches the circle of men who received shares was no doubt increased.

HOUSES

KINDS AND USES

The houses (*hare*) now in use in Tongareva differ from the old pattern in that they are made of sawn timber, erected on high piles, and roofed with corrugated iron. No perfect ancient house was seen in either of the two modern villages, but from the rough houses seen in the food plantations and the verbal description obtained, they were evidently built on the same pattern as the common rectangular house of the Cook Islands. They differ in the treatment of the walls and in the names of some of the parts of the framework. The guests of a family were lodged in one of the dwelling houses. Distinguished visitors were housed at the *hare nui* of the local chief, if he had such a building. A large party received at a social center was lodged among different members of the local community. The local people could always crowd together and free some huts for the use of visitors. No great inconvenience was caused, as the only pieces of furniture needed were a few mats for the floor. To mark the occasion a fresh layer of coral gravel was sometimes spread over the floor. Large parties of visitors were not housed but were given a camping ground. If doubt existed as to the visitors' intentions the camping ground would be removed from the local center, or on another island. The rough shelters of coconut leaves were quickly made by the visitors themselves. Lamont (15, p. 211) remarked that while he was at Omoka, "the people of Matunga came over to see me, and encamped along the water's edge, where they remained for some time, having thrown up little temporary huts very quickly."

The clear graveled space before the dwelling houses formed the family meeting places. The *hare nui* of a chief and a clear space at the social center formed the rallying places not only for the members of the community but for the official reception of guests. For religious purposes and the exercise of customs, the stone-inclosed marae was the assembly place.

COMMON DWELLING HOUSE

The ordinary house was small. Many of the house sites measured are 9 feet long by 6 feet wide; some are even smaller. However, as public congregations took place on the marae and people sat out on the graveled open spaces in front of their huts, the small size is accounted for by the use of the huts as bedrooms. The chiefs had larger houses. Lamont noticed the larger houses of the principal chiefs he visited at Omoka, Motu-unga and other islands. Turua's house at Motuunga he describes (15, p. 185) as hav-

ing a framed roof about 10 or 12 feet square with the eaves about 5 feet from the ground. The house platform of the house of the high chief, Turua, in Motukohiti was, roughly, 38 feet long by 18 feet 6 inches wide, and though the house may not have covered the platform entirely, it was large.

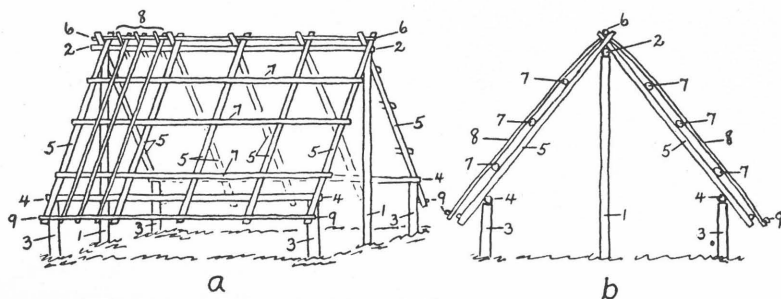


FIGURE 3. House framework, *a*, side view; *b*, end view: 1, supporting posts of ridgepole (*pou*); 2, ridgepole (*tahuhu*); 3, wall posts (*pou*); 4, wall plates (*hapai*); 5, principal rafters (*oka*); 6, upper ridgepole (*tamaiti*); 7, purlins (*torotoro*); 8, thatch rafters (*rau oka*); 9, eaves rod (*torotoro hiohio*).

The house framework is shown in figure 3. A supporting post (*pou*) of coconut (*niu*) or hala (*Pandanus*; *hara*) was erected in the middle of either end of the rectangular ground plan. The ridgepole (*tahuhu*) was placed in position on the supporting posts. Side wall posts, also called *pou*, were used, and the wall plates were lashed to them. The principal rafters (*oka*) were stretched over the wall plates and ridgepole, with the upper ends crossing to form a support for the upper ridgepole, called *tamaiti* (child) to convey the idea of its being the child of the main ridgepole. About three horizontal purlins (*torotoro*) were used on either side on the outer side of the principal rafters. The thatch rafters (*rau oka*) were placed on the outer side of the purlins. The eaves rods (*torotoro hiohio*) were tied to the outer side of the lower ends of the thatch rafters. They supported the lowest tier of thatch and derived their name from *torotoro* (purlin) and *hiohio* (small), being thinner than the main purlins. The names which differ from those used in the Cook Islands are *hapai* for *rape*, *torotoro* for *tarava*, *tamaiti* for *taorangi*, *rau oka* for *kaho*, and *torotoro hiohio* for *manuae* or *iniki*. The thatch rafter name of *rau oka* (*rau*, thatch; *oka*, rafter) although appropriate, has displaced the widespread Polynesian term *kaho*, which occurs in some regions as *kaho*, *'aho*, and *'aso*. The term *kaso* is present in the Tongarevan dialect, but has been applied to the rod over which lauhala (leaves of *Pandanus*; Tongarevan, *rauhara*) is bent to form roof sheets.

The thatching material was made of lauhala, which, like that of the lower Cook Islands, was first soaked in the salt water of the lagoon to kill the bugs and beetles. After being dried in the sun the leaves were rubbed against a stake stuck in the ground in the same manner as in Aitutaki (28, p. 13). The rubbing process is termed *sahu* (Aitutaki, *oro*). On the completion of the rubbing the tip end (*siku*) of each leaf was bent across the butt end (*pu*) and kept down with the foot at the bottom of the rubbing stake. When several leaves had accumulated around the stake they were tied together at the leaf crossings and formed a *tupe* bundle.

For joining the leaves into roof sheets, aerial roots (*kaihara*) of hala (*Pandanus*; Tongarevan, *hara*) were used. The roots were cut into three or four foot lengths, and the bark peeled off (*ka sosore te kiri*). The lengths were split (*vavasi*) into two kinds of rod, a thicker rod (*kaso*) and a thinner rod (*haniu*). The term *kaso* has been transferred from the original thatch rafter. The term *haniu* in Tongareva is also applied to the midrib of the coconut leaflet and is so used in the Cook Islands.

A wooden needle (*tui*) made of *ngangie* is used to sew the roof sheets of lauhala together. The implement resembles the *au tui* of the Cook Islands, except that it is wider and that most of them are sharpened at both ends. (See fig. 4.)

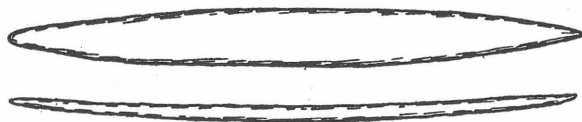


FIGURE 4. Top and side views of wooden needle (*tui*) for sewing roof sheets: length, 9.5 inches; middle width, 0.9 inches; thickness, 0.4 inches; slightly curved longitudinally and pointed at each end.

After material has been assembled, the sewing of the sheet commences (*kua sausan te tui*), as shown in figure 5. The sheets are three to four feet wide, according to the length of the *kaso* rod which stiffens the doubled-over edge of the sheet. The *haniu* rod keeps the leaves together. A large number of sheets are required and when they have been made the thatching commences.

In the Cook Islands the roof sheets are sewn together in exactly the same manner (28, p. 17). Here and in Samoa coconut leaflet midribs are used for pinning the leaves together. The use of thin strips of hala rootlet under the name of *haniu* shows that the leaflet midrib was also in use in Tongareva, and the name *haniu* was applied to the rootlet material after it had displaced the coconut leaflet midrib.

The covering of the roof with lauhala is termed *tapoki* (to cover), but the actual thatching process is *atohanga*. Two-ply twisted sennit cord (*hauato*) is used for tying (*sere*) the sheets to the thatch rafters. In commencing, two sheets (*parua*) are laid together across the thatch rafters with their rod ends just above the eaves rod. The cord is tied to the lower end of the thatch rafters. The thatcher, from the inside of the house, carries the cord over the upper edge of the sheet on the right of the thatch rafter, crosses it over the thatch rafter on the outside, and after puncturing a hole through the sheet below the *kaso* rod on the left of the rafter, brings the cord through the hole to the inside. The cord is drawn taut with a half hitch around its standing part or with a single overhand knot. Single sheets are then added two or more inches apart, each being knotted in position with the continuous cord. The thatching works upward until the upper ridgepole is reached, when another double sheet (*parua*) finishes off the section. The roof is thatched in sections of the width of the roof sheets. The completion of the thatching is expressed by the phrase "*kua tuku te raumanu*," *raumanu* meaning all the *rau* (leaf) sheets. In the Cook Islands a wooden needle with a hooked point is used in thatching (28, p. 22), but in Tongareva no mention was made of such an implement.

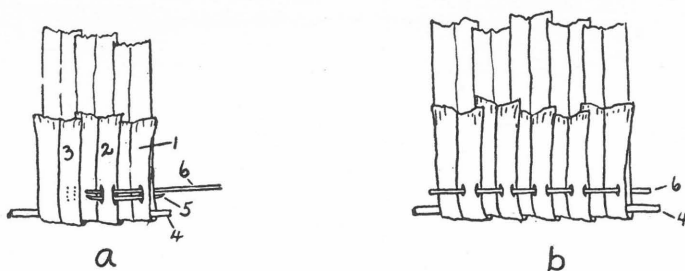


FIGURE 5.—Sewing hala (*Pandanus*) thatch sheet. *a*, technique: leaf (1) held with butt end toward worker and with back surface up; a *kaso* rod (4) laid across leaf about 10 inches from its butt end and leaf butt turned forward over rods; a second leaf (2) added on left in same way with side edge overlapping that of first by about 0.5 inches; the two leaves held together with left hand; right hand pushes the needle (5) up through both layers of first leaf beyond rod and to right of midrib; long diameter of needle held in same direction as length of leaves in order that it may split more readily through longitudinal fibres of leaf; point carried across midrib and passed back through overlapping edges of both leaves and up again through both layers of second leaf (2) on near side of its midrib; needle given half twist to open holes with its wide diameter; thinner *haniu* rod (6) is passed through the three holes as far as point of needle; a third leaf (3) added with overlap; needle removed; downward and upward piercing on third leaf (3) at parts marked by dotted lines repeated; and rod (6) pushed on through holes. *b*, section of completed sheet: other leaves have been added in manner indicated and needle removed; *kaso* (4) and *haniu* (6) rods in position.

Roof sheets of split coconut leaves with the leaflets plaited in check are used in the rougher houses. It is probable that lauhala was formerly not commonly used, for Lamont (15, p. 155) states that "their houses or sheds are made of the cocoa-nut branches." The coconut leaf sheets are easier to make, as the leaflets are fixed naturally to the midrib strips and require no artificial *kaso* rods. In thatching, the midrib strip edges are placed above, and the tying with a continuous cord proceeds. The details of making the coconut leaf sheets are the same as in the Cook Islands (28, p. 7).

Ridge sheets (*takaumisau*) of plaited coconut leaf are laid longitudinally to overlap the upper edge of the roof thatching on either side. Pointed stakes of *ngangie*, termed *soka*, are pinned through below the upper ridge-pole to keep the ridge sheets in position. Pinning on the ridge sheets is "sokahia te takaumisau." The ridge sheets are also similar to those in the Cook Islands (28, p. 26).

The sides of the house are termed *tua*, and the ends, *tara*. Lamont (15, p. 185) states that the eaves of a large house on Motu-unga were about five feet from the ground. In the smaller houses the walls were much lower. The ends were thatched to about the level of the side eaves, and below that the house was open on the four sides. Shelter from wind or rain was provided by plaited coconut leaf screens.

There were two wall screens, a narrow screen (*pataro*) formed by plaiting the leaflets on one side of the midrib, and a wider one (*pataro mangarua*) in which the extra width was obtained by plaiting two sides of the midrib. Lamont (15, p. 185) noted that

. . . slight stakes, of about a foot high, are driven into the ground around the house, immediately under the eaves, and at night long narrow mats of cocoa-nut leaf are fastened to, or laid against, these pegs, forming a shelter from the blast. Otherwise the house is entirely open all round.

The mat was probably the long narrow *pataro*. The wider *pataro-mangarua* was attached by one of its split midrib edges to the wall plate above and hung down as a screen. To secure it during a strong wind, the lower midrib edge could be fastened to pegs below. To permit the circulation of air through the house, the wider screens were propped upward and outward by lengths of coconut leaf midribs. The wider wall screen is the one in common use.

THE PASAKA

The *pasaka* house was built without wall posts and wall plates. The lower ends of the principal rafters rested directly on the ground. The roof was

made of lauhala sheets. (See fig. 6.) The *pasaka* was a recognized type of good dwelling house built for strong winds and hurricanes. It was not as likely to have the roof blown off as was the house with the roof raised above the ground. Since the people spent most of the daylight hours out of doors and sat out on the cleared space in the evenings, the houses were used for sleeping or resting in the recumbent position. Consequently, the low roof was not especially inconvenient, and any slight inconvenience was compensated for by the added security in windy weather.

Besides these dwelling houses, rougher houses were built on the food lands, where the people stayed at odd times and did not need well-constructed dwellings. The *pasaka* house involved less work as the essential uprights, ridgepole, and rafters which rested on the ground furnished sufficient framework for a roof of plaited coconut leaves. It was evidently a modified type of *pasaka* that Lamont (15, p. 113) described:

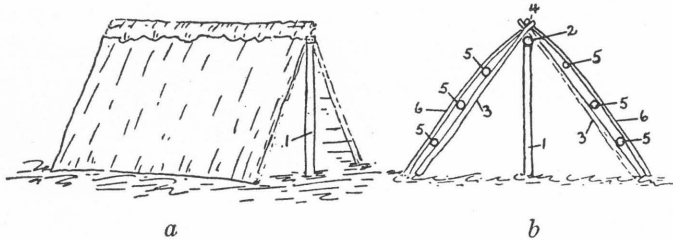


FIGURE 6. Side and end views of *pasaka* house: *a*, side view; *b*, end view. 1, posts supporting ridgepole; 2, ridgepole; 3, principal rafters with lower ends resting on ground; 4, upper ridgepole; 5, purlins; 6, thatch rafters.

In recrossing I observed some low sheds, which, as I saw no other dwelling places, were doubtless the residences of the natives, though the most miserable shanties I had ever beheld for human beings, consisting merely of four inclined sticks, about five feet in height, with two uprights and crossbeam, forming a light frame for a small roof. At the base the house is some six feet wide by eight long, the whole covered by a thatch of the cocoa-nut tree, formed by splitting the bough and platting [plaiting] the leaves, till enough are linked together to reach about half way up the frame, on which it hangs so loose that it can be lifted or dropped at pleasure. Other boughs are then fastened on in the same manner, but secured to the frame till all is covered in, the ends being closed by platted boughs secured to the uprights. Those I saw on the present occasion had the leaves supported by a stick.

By "bough" Lamont means the coconut leaf with its midrib, and "leaves" are the leaflets. Clearly, the plaited roof sheets did not reach to the lower ends of the rafters, and the hanging plaited leaf that reached halfway up the frame was the wall screen (*pataro*) which was propped up by a stick, leaving an aperture through which Lamont crawled.

THE HARE POU

The *hare pou* was described by my informants as another type of house, but they knew nothing about its architecture. Their only knowledge was derived from a song (*pese*).

Poupou hare no Pou-toru,
Ka hanake koe mei Savaiki,
Ka ma tua koe ia Taritoa,
Ko hakaaroha, pinga te poi.

Posts of the house from Pou-toru,
You have come up from Hawaiki,
You are the senior generation through Taritoa,
Love wells up, all is good!

The significance of this song could not be explained in detail, and the rough translation may not adequately convey the meaning. The phrase, *pinga te poi*, was said to be short for *pinga te ipoipo* (very good).

Coconut leaf shelters were quickly made on the plantations from coconut leaves arranged roughly in the form of a bell tent. (See fig. 7.) A few

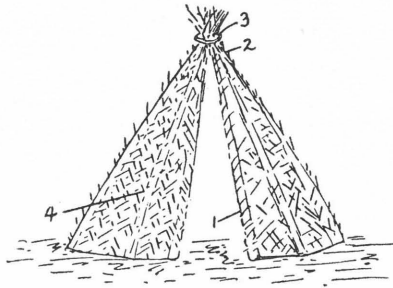


FIGURE 7. Coconut leaf shelter: whole coconut leaves arranged with their butts (1) in circle on ground; tips (2) brought together at top and tied (3); leaflets of adjoining leaves plaited together (4).

of these shelters were seen on the islands not permanently inhabited, but the demonstration of the technique was, unfortunately, crowded out by the rush of other work. This type of shelter was probably made by visitors when they were given a camping ground away from the settlements. It required no wooden framework, a vast consideration with the tools in use.

HOUSE FURNITURE

A few mats were the essential house furnishings in Tongareva. Such personal property as sennit cord, fishing nets, and weapons was also kept in the dwelling.

Sleeping mats of lauhala were in common use, and two kinds of coconut leaf mat were described to me. The coconut leaf mats (*pakere rei*) were

used as floor coverings, and shorter mats (*tapakau*) were used for seats. When the people sat outside for their meals or to rest, the *tapakau* were brought out of the house and spread on the coral gravel covering the open space.

Back rests (*tokotua*, from *toko*, to prop, and *tua*, the back) dubbed out of *tou* wood and propped up at an angle by a short stake, were described to me as of old invention. The sitting mat upon which the person sat with the back rest adjusted to a comfortable angle, was spread on the ground. (See fig. 8.) Lamont crawled into one of the small huts to observe the furniture, and he says (15, p. 114):

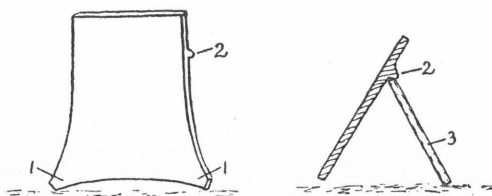


FIGURE 8. Front and side views of back support (*tokotua*), slab of wood with sides curving out at bottom and lower edge: 1, curved projections that give wide support; 2, horizontal ridge on back; 3, prop to keep rest at desired angle.

This was not of the most costly description. A roll of sinnet and a coarse bag-net were suspended from the ceiling, a rough mat of pandanus leaf partially covered the sandy floor, and another was thrown over what seemed a bundle at the far end. Curiosity tempted me to lift the latter, when I beheld an urchin whose little black eyes seemed fairly to start out of their sockets, as they stared at me; while his mouth, which was about as broad as his face, emitted the wildest screams of terror I had ever heard. Nearly as much frightened as the child, I backed out of his den and at the same moment the little imp, throwing up the opposite side of the house, darted into the woods; and, though his yells still were heard, modulated by distance, he was out of sight in an instant.

COOKING

METHODS

The kitchens are small buildings roofed with coconut leaves and set slightly back from the dwelling houses. The kitchen shelters the site of the oven (*umu*).

Fire was formerly produced in the general Polynesian method with the fire plough. A pointed piece of hardwood was rubbed back and forth to form a groove on the upper cut surface of another piece of dry wood laid flat on the ground. The near end of the lower piece was held in position by the foot of the operator while an assistant steadied it with a foot placed on the other end. The dust produced by rapid rubbing collected at the

far end of the groove and ignited through friction. The lower fire stick was turned over, and the smouldering particles were emptied onto a piece of the dry coconut husk (*puru*) kept in the houses for lighting fires. The piece of *puru* was waved to and fro until it blazed.

Firewood was scarce, and all suitable parts of the coconut palm were utilized: the dry flower sheath (*taume*), the dry flower stems (*roro*), and the dry discarded shells of husked nuts (*ipu*). Firewood (*kautahu*) was also obtained from various trees, the dry branches of which were broken up by the hands and by beating the branches against other objects. In the legend of Sokoau, Sokoau says to her brothers, "I au e rongo ake nei i te saruru o te kautahu e sangi mai nei. Noku paa?" (I hear the sound of the crashing of firewood. Perhaps it is for me?)

In the Polynesian oven heat for cooking is produced by heating a single layer of stones arranged over the top of the burning wood. In the volcanic islands stone is plentiful, but in atolls like Tongareva the absence of good stone presents difficulties. Recourse was had to pieces of coral and the empty shells of the *Tridacna*. The coral was broken up into suitably sized pieces which, however, could be used once only, as after being heated they crumbled up into small white pieces (*tia*). A new supply of coral had to be obtained each time the oven was used. Accumulations of small, soft pieces of *tia* are to be seen about the old cooking houses, and mounds of *tia* mark the sites of ovens formerly used for cooking turtle near the sacred marae inclosures. (See page 174.)

The *Tridacna* shells used are those of medium size which are obtained in large quantities from the lagoon. They are thick, but crumble readily after use. However, each fresh supply of food also furnishes a fresh supply of shells. The pile of discarded shells at the back of the cooking house serves a useful purpose as reserve heating material, just as the pile of discarded coconut shells forms reserve fuel.

When the coral pieces or shells are heated they are levelled off to form an even bed for the food. To prevent the food from being burned it is necessary to place a layer of green material between the heated medium and the food. Here again Tongarevan methods are influenced by their environment. In the high volcanic islands strips from banana stems or large leaves are used, but in Tongareva, where such material is absent, the green husk of coconuts forms a ready substitute. Shredded strips of green husk are laid in a layer over the stones, and the food is placed upon the husk.

UTENSILS

In the use of the coconut culinary methods in Tongareva differ from those in the high volcanic islands. In the high islands coconut cream

expressed from the grated mature nut is the only part of the coconut that is cooked, and this is usually put with other foods to add flavor. In Tongareva, except for the fruit of the hala (*Pandanus*; Tongarevan, *hara*), preparations of coconut form the only vegetable matter that can be cooked. The flesh of the fruit is grated and mixed within the shell, the top of the shell is put on as a cover, and the food is cooked within it. Some of these shell containers, which become blackened on the outside, may be used again. It is always the base of the nut that is cut off as a lid, because the eye depression at that end becomes patent. A leaf is usually put on under the cover to prevent dust from passing through the hole into the food.

Some fish are cooked whole, but others are cut up and cooked in coconut shells. The rich gravy of such fish as the *ruhi* is preserved by a method comparable to modern cooking in casseroles.

Oven cover. Owing, probably, to the absence of suitable large-leaved plants such as the banana, breadfruit, and hau (*Hibiscus*) the covers designed to keep the heat in the oven are neatly made from coconut leaves with the leaflets plaited in twill. They are termed *tōtō umu* (*to*, to cook in an oven, *umu*)—a word that differs from the more widely used *tao*. (For technique see page 129.)

Coconut shell cups (*ipu*). Cups were only used for drinking water, for coconut fluid was drunk directly from the opened nut and *kava* was not made in Tongareva.

Water bottles. Coconut water bottles (*puharu*) were used. In making them the depression (*mata*) at the base of a mature whole nut was pierced and salt water poured into the cavity to rot out the flesh. Sennit cords were attached by puncturing holes through the other two depressions at the base to pass the cord through, and the *mata* hole was closed with a leaf stopper. As many as twenty of these vessels were carried on a pole to the water hole and filled. A water hole named Kitereau, seen near Te Reinga marae in the Motukohiti district, had the reputation of containing water when other water holes were dry. After the establishment of the modern villages people went overland or by canoes from Omoka to get their water supply from Kitereau.

Wooden bowls (*kumete*). Wooden bowls were made from *hano* and *tou*. The *hano* wood was seasoned by soaking in salt water, and *tou* was buried in the ground. Logs of *tou* are not infrequently dug up by accident in places where they have been buried by a previous generation and forgotten. Bowls were needed to serve the uncooked preparations of grated coconut to more than one person. The usual type of food bowl was said to be oval. They have now entirely disappeared, owing to the use of modern trade equivalents. Lamont (15, p. 152) referred to the wooden bowls, which he termed *comities*, as the only Tongarevan utensils besides coconut shell cups.

Round bowls (*kumete tatau*). The *kumete tatau* has a rounded bottom and a projecting short lug on either side. Its name is derived from its use as a receptacle for *roro* cream after it has been expressed and strained (*tatau*) from the grated mature nut. The *kumete tatau*, then, function as drinking flagons. They are now extremely scarce, as the *roro* cream is rarely made. (See pl. 8.)

Shell scrapers. The shell of the bivalve *kasi* (*Asaphis violacea*) is used to scrape out pieces of the mature nut, such as the *takataka*, at meals. The shell is also used by the women in preparing the flesh of the mature *sakari* nut for extracting the *roro* cream. Some women prefer it to the coral grater. The older experts could remove the pieces in such thin slices that a coral grater was unnecessary and its use was even disparaged.

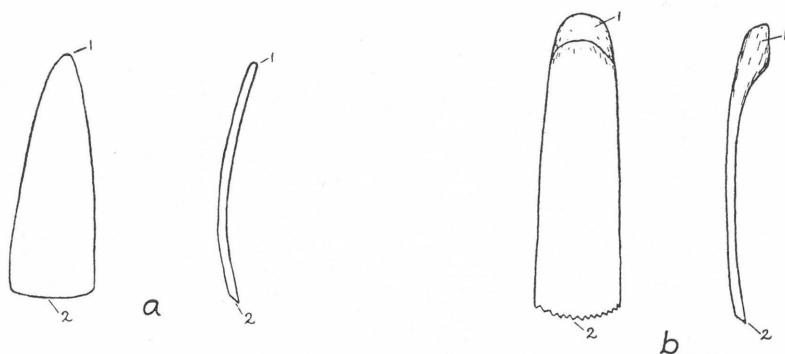


FIGURE 9. Pearl shell hand graters (*tuai*), 4 to 7 inches long, 0.5 to 0.75 inches wide at hinge end, and 1.25 to 1.75 at other end. *a*, front and side views of short implement made without hinge of shell, back ground to remove roughness, 0.1 to 0.15 inches thick: 1, upper hinge end, narrow with rounded point; 2, lower grating, convex from side to side and not serrated. *b*, front and side views of longer implement, thick hinge part of upper end and lower edge ground from back: 1, upper end, part of hinge included; 2, lower end, serrated cutting edge.

Hand grater (*tuai*). The hand grater is a utensil made from the shell of the pearl oyster (*parau*), cut in long narrow strips from the hinge to the free edge and somewhat resembling a shoe horn. (See fig. 9.) The front is formed by the inner smooth surface of the shell, which is concave longitudinally and slightly so transversely. Some graters are very thin, the hinge part of the shell having been cut away. Others include part of the hinge, and in these the upper end is wide enough for the thick hinge to afford a good grip. Most of the graters are serrated, but some are smooth-edged. Some are but lightly ground down on the back to remove the roughness, but others are ground down to remove all the dark material, and thus give the implement a polished appearance. Lamont (15, p. 185) states that some graters had rude carvings upon them. Each household has a number of these

implements. They are used as spoons for grating and conveying the softer flesh of the green nuts such as the *ni mata* and *ni motomoto* to the mouth. The end of the nut is tapped with a stone to crack the shell in a circle, the small cap is removed, and the contained fluid is poured into another receptacle. The opened nut is held on the lap, and the hand grater is used with quick, light strokes to separate the flesh into thin strips. The strip may be made thinner or thicker by regulating the pressure on the grater. When all the flesh is grated, including that on the cap, the fluid is poured back into the shell containing the grated material, and the two are mixed. The flesh may be eaten, with the *tuai* used as a spoon, or cooked to form the preparation known as *ni varu*. If quantity is required the grated material is emptied into a bowl. The process of grating with a *tuai* is termed *waruwaru*. The hand grater is also used for grating the *karisi* (soft portion of the husk at the base of the younger nuts.) Fragments of these implements are to be seen near old house sites on the various islands, and they are the commonest artifacts found. They are also to be seen on the coral gravel covering graves, having formed part of the personal effects of the deceased.

Stand grater (*kau tuai*.) The *kau tuai* is used for grating the hard flesh of the mature *sakari* nut (fig. 10). The term *tuai* is here retained,

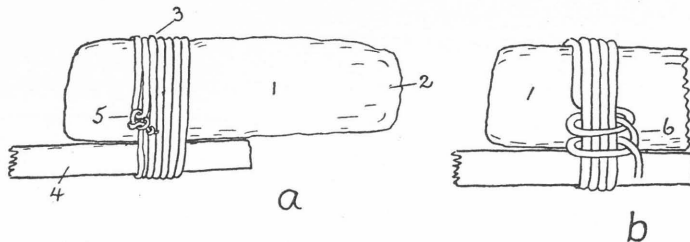


FIGURE 10. Coral stand grater (*kau tuai*) observed in rough working hut: *a*, side view; *b*, side opposite commencement. 1, piece of coral 5.1 inches long, 2 inches wide, and 1.4 inches thick; 2, longitudinal and front edges, rounded off; 3, slight groove chipped for lashing—coral is laid on piece of board (4) of same width at one end with 1.6 inches projecting beyond board; 5, running noose of fishing line fixed around coral and wood with six or seven close turns; 6, two half-hitches around lashing finish off cord on opposite side to commencement.

as in the Cook Islands and Samoa, for the grating part of the implement, and *kau* for the wooden part upon which the *tuai* is mounted. This usage is followed in Samoa, where the grating edge, originally of hard coconut shell or chipped stone, is the *tuai*, and the tripod stand upon which the *tuai* is mounted is termed *'au sa 'alo*. (The Samoan *'au* corresponds to the Tongarevan *kau*.) The *tuai* part of the Tongarevan grater was formed of a piece of coral (*punga*) shaped to a conical end to fit against the concave surface of the coconut flesh. It was long enough to be lashed to the *kau* stand.

The stand consists of a piece of wood to one end of which the coral was lashed to form a long projecting arm. The serrated iron grater now to be seen throughout Polynesia has completely supplanted the old coral grater in the village cook houses, but occasionally the worker camping out on his plantation some miles from home falls back on the ancient model.

Probably no elaborate tripod, or seat, was used with the stand grater. The straight arm of the implement was leaned against a support formed by a rock, a piece of wood, or the slanting butt of a coconut tree. The coral end was elevated to give clearance for a bowl or a mat placed below. The operator rested his knees against the wooden arm to keep it in position and grated the split nut against the coral.

Nahuinga, the oldest woman in the Omoka village and affectionately called "Ma" (mother) by all, gave me a demonstration of the expert celerity with which a *kasi* shell can be used in clearing out a mature *sakari* nut into the fine thin pieces necessary for wringing out coconut cream, the only use for which a stand grater is needed. She maintained that she could prepare the material more quickly than with the coral stand grater, and she preferred the *kasi* shell. This preference for the *kasi* shell probably explains why a better stand is not made for the coral *tuai*. The stand grater was merely an accessory implement to which no care in structural technique was devoted.

Coconut cream wringer (*kainga*). The combined wringer and strainer used in expressing coconut cream from the grated mature nut is prepared from the green husk of the coconut in the *ni motomoto* stage of growth, and for this reason the husk of the *ni motomoto* received the special term of *kaha roro* (*kaha*, fiber; *roro*, coconut cream). Segments of the fresh green husk are beaten to remove the interfibrous material, and the outer skin (epicarp) is discarded. The beaten segment of fiber is strongly twisted in the hands to remove as much as possible of the moisture contained by the green fibers. The material is then soft and suitable, whereas the fiber of mature nuts is too dry and hard. The prepared *kaha roro* becomes the *kainga* wringer.

Hala fruit grater (*sahu*). For grating the ripe keys of the hala (*Pandanus*) fruit, the *sahu* was formerly made of *tou* wood. Such implements are not now used and none were seen. One, as described to me, is shown in figure 11.

The separated keys of the fruit are beaten against the board to soften them. With the keys held at the outer end, the soft fleshy part is drawn over the board against the short upper edge of the end piece, the soft fleshy material is detached from the fibers, and the hard outer part is held by the hand. The soft material falls through the slot into a bowl or

onto a mat placed below the slot. A key is held in either hand, both hands working alternately. When as much as possible of the fleshy material is scraped off, the outer hard parts with the adhering fibers are discarded.

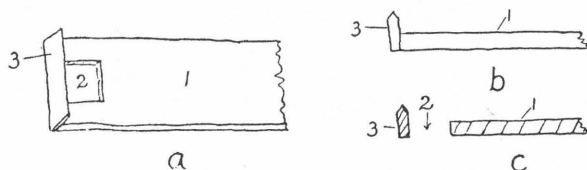


FIGURE 11. Grater (*sahu*) for hala (*Pandanus*) fruit: *a*, upper surface; *b*, side view; *c*, longitudinal mesial section. 1, flat board dubbed out of *tou* timber; 2, square slot at one end of board; 3, piece of *ngangie* wood lashed across end with upper sharpened edge projecting above level of upper surface of board.

Opener for *Tridacna* shell (*no*). A pointed piece of *ngangie* wood is used for opening the *Tridacna* shellfish (*pasua*). To one who knows the exact place and direction of insertion the opening up of the shell is easy. No particular shape for the wood was described.

Many accessory implements are used in connection with coconuts. (See p. 116.)

FOODS

VARIETY

The sources of food on an atoll form a marked contrast to those on the richer high volcanic islands. Most of the staple foods of Polynesia have been introduced at one time or another, but high islands, probably because they were more easily sighted by voyagers, received more visitors and thus shared more extensively in the distribution of introduced foods. The pig, the dog, and the fowl, which reached many islands, did not arrive at Tongareva. Wilkes (31, vol. 4, p. 279-280) states, "A bunch of what were apparently cock's feathers was also noticed. . . . It is believed that they have the domestic fowl among them, from its feathers having been seen as ornaments." The feathers seen did not belong to the domestic fowl, but to some other bird, probably the man-of-war hawk (*Fregata aquila*).

On Tongareva none of the common Polynesian cultivated root plants were present, not even the *puraka* species of taro which grows in Manihiki and Rakahanga. It is difficult, therefore, to understand why Wilkes (31, vol. 4, p. 280) made the statement, "The yam was also observed, but not the taro." Lamont (15, p. 148) speaks of getting a piece of yam from a woman, but definitely states that it was obtained from their wrecked ship. It is probable that the coconut *uto* was mistaken for yam by the Wilkes Expedition, for it is quite certain that the yam, taro, and sweet potato did

not grow in Tongareva. In comparatively recent times the *puraka* has been planted and seems to be thriving. Of the fruit-bearing trees, only the coconut and the hala (*Pandanus*) were present, and both were traditionally stated to have been introduced by the ancestor Mahuta. Even the *none* (*Morinda citrifolia*) which grows wild in Manihiki is absent from Tongareva. For vegetable foods the Tongarevans were restricted to the coconut and the hala.

FLESH FOODS

It seems certain that cannibalism did not prevail in Tongareva as it did in some parts of the Cook Islands. Lamont gives no hint of it, and the natives have no record except for a tradition that Tonu killed his wife Sokoau for infidelity, cut up her body, and divided it among his people. The horror surrounding this one act is said to have been memorialized in the marae of refuge known as the Papa-o-Sokoau.

The lagoon and the sea outside the reef, both teeming with fish, provided the main flesh food supply. Fish were caught by a variety of methods. Fish ponds in which mullet were kept and fattened were used. Of the fish the *ruhi* was the most esteemed, and Lamont (15) speaks many times in appreciation of its fat, juice, and flavor. The fish cooked whole in the native oven were placed in *kete* baskets. The remains and smaller broken pieces were kept in the smaller *taunga* baskets and dried for future use.

The most important shell fish was the *Tridacna* (*pasua*). Large quantities are obtained in the lagoon, especially near the numerous isolated coral heads in the lagoon. Women usually collected them by swimming out to the coral heads with baskets and pieces of wood to act as floats for the baskets and diving for them to the sandy bottom. The shell was opened with a pointed stick of *ngangie* wood (*no*), and the extracted flesh was placed in the basket. Large quantities of *Tridacna* still in the shell were brought back to the dwelling houses, as the huge heaps of shells to be seen on all the islands testify. Besides being eaten fresh, cooked and uncooked, the cooked *pasua* were also threaded on strips of material and hung up to dry to form a reserve ration. They became very hard but were softened by recooking.

The pearl oyster grows in the lagoon, but does not seem to have been utilized as food to the same extent as the *Tridacna*.

The turtle (*honu*) was obtained and cooked in its shell, from which it was cut up and served. It figured in ceremonial feasts, when it was cooked in special ovens on particular sites associated with some of the maraes. Turtles are still caught, but the ceremonial feasts have been long abandoned.

Porpoises (*paraoa*) are also taken as food, but the old method of driving schools ashore is no longer used.

Various sea birds breed on the small islands of the atoll, and the young were utilized as food. The eggs also were gathered.

In July, 1929, the tern were laying on the small island of Te Kasi and the southern end of Hakasusa.

COCONUT

SIGNIFICANCE

The coconut was fully utilized in Tongareva. Though it is conceivable that a people could subsist on fish supplemented by the fruit of the hala, the population would of necessity be small. After its introduction the coconut was planted on all the islands surrounding the lagoon, and the rich crop obtained enabled a larger population to subsist than would otherwise have been possible. On atolls the spread of the people is intimately associated with the spread of the coconut, and the part played by the coconut in improving the conditions of life and increasing population cannot be overestimated.

The need for the coconut as the main staple of vegetable food led the people to study every phase in the growth of the fruit. This resulted in such a minute practical classification of the stages of growth with analyses of food values at each stage that the student, aware only of its food uses in the high volcanic islands, realizes for the first time the full value of the coconut. Every part of the nut that was possibly edible was utilized. Besides the flesh and fluid, parts of the enveloping husk and the growing plant within the cavity were constituents of the diet. The growth of the nut was divided into ten named stages, and eight of these had their particular uses as food. The stages of growth could be distinguished unerringly even from the ground, so that the person requiring nuts for a particular food preparation walked through his plantation, scrutinized the tops of the trees, and only climbed the tree when he had recognized the right fruit.

BOTANICAL FEATURES

The coconut palm is designated *niu*; its leaves, *nikau*. The tough spathe which incloses the flower is the *taume*, which opens and droops down as the flower increases in size. The dry *taume* is used as firewood. The flowers are in spikes branching from a central axis. Near the base of each lateral axis is a single female flower. The numerous male flowers grow on all sides of the axis between the female flower and the apex. The whole collection of flower spikes attached to one central axis is termed the *rōrō*. The female flowers are termed *pei*.

The nut of the coconut consists of the epicarp, mesocarp, endocarp, testa, endosperm, embryo, and contained fluid.

The epicarp is the smooth, tough, outer coat. The mesocarp consists of the fibrous covering commonly alluded to as the husk and termed *puru* in Tongareva. The mesocarp, according to Winton (34), consists of a hard outer coat a few millimeters thick, a soft portion 3 or 4 centimeters thick on the sides and much thicker at the base, and longitudinal fibers. The longitudinal fibers are the coir fibers used to make sennit cords and ropes. The soft portion consists of soft ground tissue composed of thick-walled parenchymatous cells. The thicker soft portion at the base is free of fibers in the early stages of growth, and as it was used as food by the Tongarevans it received the special name of *karisi*. In the later stages of growth the *karisi* becomes dry and fibrous and ceases to be edible. In certain varieties of coconut termed *mangaro*, the whole husk is sweet and is chewed like sugar cane. The endocarp forms the shell (*ipu*), which becomes hard and brittle in the later stages of growth.

Three ridges on the outer surface of the shell pass longitudinally from the base to the apex, and between the ridges at the base are three depressions, or eyes, where the tissue is softer and thinner. Winton (34) states that the ridges are equidistant, but if the basal end is closely examined it will be found that of the three spaces bounded by the three ridges one is always wider than either of the other two. It is the depression in the wider space that the natives term the *mata*. The *mata* is filled with soft tissue, and it is always through this depression that the growing cotyledon point of the embryo emerges when it sprouts. My attention was drawn to this depression by the natives, who also demonstrated that it is the only depression through which a coconut leaflet midrib can be pushed to make a hole into the nut so that the fluid may be extracted without breaking the shell. The other two depressions do not pass through the shell.

The testa is light brown in color and is united with the inner surface of the shell and the outer surface of the endosperm. The raphe, with branching veins of vascular tissue, runs through the substance of the testa. If the mature endosperm is separated from the shell with a knife the testa splits at the branching raphe, the outer part adheres firmly to the shell, and the inner part adheres to the endosperm as a brown outer layer. While the mature nut is being grated the brown inner part of the testa adheres to the shell, and thin parts of the endosperm stick to the testa.

The endosperm forms the flesh, or meat, of the nut. It commences to grow from the base of the nut and spreads over the entire inner surface of the shell. In the early stages the flesh (*varevare*, "slimy") is thin and slimy. It is edible and may be removed with the fingers. As the nut matures the flesh becomes white, thick, and firm, and is from 1 to 2 centimeters thick. It adheres closely to the shell and has to be removed with an implement. The mature, firm flesh is termed *katinga*. The cells contain bundles of needle-shaped fat crystals and lumps of protein matter. The fluid has popularly been termed "coconut milk" because of its milky appearance in the mature nuts which appear on the market. The fluid (*vai*) used for drinking is obtained from the nuts in the stages before absolute maturity (*sakari*). It is a clear fluid and closely resembles albumen or barley water, not milk of even the most watery consistence. The fluid forms in the shell before the appearance of the flesh. In the earliest stage in the growth of the nut the fluid is bitter and unfit to drink. After the bitter *kawakawa* stage the fluid makes a most refreshing beverage and is used until the mature *sakari* stage is reached, when the fluid is too bitter to drink. It gradually diminishes in quantity, due to the action of the absorbing organ of the embryo.

The embryo is imbedded in the flesh near the base of the nut. After the nut has reached maturity a soft spongy mass (*uto*) spreads out from the region of the embryo near the base, and, gradually absorbing the fluid and part of the inner surface of the flesh, it fills the entire cavity of the nut (fig. 12, *i*, *j*). At the same time a sprout penetrates the *mata* depression at the base, and as it pushes its way through the husk envelope it develops into the growing plant, with leaves, stems, and roots. Dr. Forest B. H. Brown informs me that the cotyledon which develops from the embryo has an absorbing organ, termed *Sauforgan* by German botanists, which develops within the cavity, and another part divided into plumule, caulicle, and radicle, which pushes out

through the eye of the shell. From the plumule, caulicle, and radicle are developed, respectively, the leaves, stem, and roots of the plant.

THE UTO

The absorbing organ of the coconut cotyledon (*uto*) is most appreciated as a food, for it provides a vegetable food distinct from the ordinary flesh of the nut. Mature nuts with the husk intact are collected and stored to await the *uto* stage of growth. From the size or length of the growing shoot the householder can tell whether or not the *uto* has filled the entire cavity of the nut and is ready for use. The *uto* at this stage forms a light, spongy, somewhat watery mass which may be eaten raw, grated, or cooked. The small amount of unabsorbed flesh that still remains is also utilized.

To obtain the full good from the *uto* an ingenious method is adopted. The *uto* nuts which have begun to sprout are laid in a shallow pit in layers and covered with earth to the depth of about 1 foot above the upper layer. When the shoots of the upper layer appear above the earth they are allowed to grow for another foot. The pit is then uncovered, and the shoots of all the nuts are nipped off above the stems of the two lowest leaves. The nuts are replaced and covered. When the shoots again reach a height of 1 foot they are nipped once more. Growth usually ceases after the second nipping, but some nuts may require a third nipping. During this period the *uto* absorbing organ has completely absorbed the endosperm flesh within the nut cavity. As it has no more room for expansion, the *uto* not only fills the cavity but becomes firmer and more compact, thus increasing in value as a food. It has also absorbed the fat crystals of the endosperm and is accordingly richer and more palatable. If the growing sprout is nipped off close to the husk, growth is stopped altogether, the absorbing organ ceases to function, and the *uto* remains thin and spongy, and, of course, a portion of the flesh remains unabsorbed.

In some mature nuts the fluid dries up and there is no growth. Experience has shown that the flesh of such nuts keeps for some time, so attempts are made to dry up the fluid artificially. It has been found that the nuts grow when in contact with the ground and exposed to moisture, but even then some nuts do not sprout. To prevent growth the mature nuts are collected and placed on a scaffolding above the ground and under cover. The nuts are selected from those newly plucked or fallen mature nuts that show no signs of growth. Nuts exposed on the ground to form *uto* that show no signs of growth after a reasonable time are removed and stacked on the covered scaffold. Nuts on the scaffold that commence to sprout are removed and added to the *uto* reserve. From the *sakari* mature stage the fluid gradually dries up. When the fluid is not quite dried up and the flesh is still white the nut is termed *maimasa*. In the last stage (*takataka*)

the cavity of the nut becomes quite dry and the flesh brown or dark in color. The stages are distinguished by shaking the nut and listening to the sound made by the fluid within. The flesh of some nuts becomes mouldy, and such nuts, when opened, are discarded as unfit for consumption. When the flesh assumes a reddish-brown color the nuts are called *kura* (red). The *kura* is regarded as the best form of *takataka*.

STAGES OF GROWTH

The stages of growth of the nut are shown in figure 12. The characters and use of the nut at its different stages of development are given in Table 8.

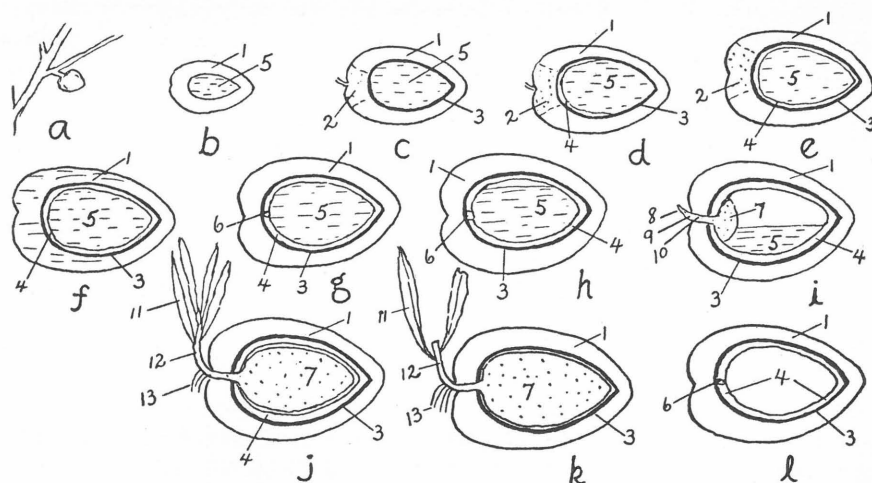


FIGURE 12. Stages in growth of coconut: a, *pei*; b, *kawakawa*; c, *rau*; d, *kaipu*; e, *ni mata panapana*; f, *ni mata*; g, *ni motomoto*; h, *sakari*; i, *maimasa*; j, k, *uto*; l, *takataka*. 1, mesocarp, husk (*puru*); 2, edible husk (*karisi*); 3, endocarp, shell (*ipu*); 4, endosperm, flesh; 5, fluid (*vai*); 6, embryo; 7, absorbing organ (*uto*); 8, plumule; 9, caulicle; 10, radicle; 11, leaves; 12, stem; 13, roots.

As shown in Table 8, the word *ni* is used in the fifth, sixth, and seventh stages of growth, but it is qualified by adjectives to indicate the particular stages, usually referred to as *panapana*, *ni mata*, and *motomoto*. No term is used to indicate the fruit in general. The different stages have become so distinct that a general term is not only vague, but useless. If a European should ask for a "coconut" the word would convey no meaning to the Tongarevan, for the Tongarevan associates directly the name for the kind of nut and its use. It is in practical circumstances that the Polynesian dialects have enriched their vocabularies with specific terms. Older, more general terms have even been lost.

Table 8. Development and Use of the Coconut

STAGES OF GROWTH (See figure 12)	CHARACTERS	PARTS USED	PREPARED DISHES
a. Pei	Fertilized female flower.	.....	.....
b. Kawakawa	Cavity filled with clear fluid, too bitter to drink.	.....	.....
c. Rau	Husk well formed. Fluid clear and ceases to be bitter. No flesh formed.	Husk (karisi) fluid (vai)	.....
d. Kaipu	Flesh forming in base half of nut, thin, slimy, easily detached.	Husk, fluid, flesh (varevare)	.....
e. Ni mata panapana	Flesh spread over whole of inner surface in thin, slimy layer.	Husk, fluid, flesh	.....
f. Ni mata	Flesh thickens but still soft. Husk dry and unfit for food.	Fluid, flesh	Suisui Ni varu Ni ta
g. Ni motomoto	Flesh thicker and firmer; embryo developing. Fluid plentiful and clear.	Fluid, flesh	Roro Kapani ota
h. Sakari	Flesh mature, thick and hard. Fluid less, bitter, unfit to drink. Embryo develops into absorbing organ.	Flesh	.....
i. Maimasa	Cotyledon pushes through mata hole and husk at base. Fluid being absorbed.	Flesh	.....
j. k. Uto	Fluid completely absorbed. Cavity filled with spongy uto. Flesh thinner and in artificially produced uto, flesh entirely absorbed. Plumule developed into leaves, caulicle into stem, radicle into roots. Sprout nipped off above lowest two leaves. Embryo undeveloped. Flesh thick and very hard. No fluid; no sprout.	Absorbing organ (uto). Flesh (when present).	Takarari Kohu Ipusaka
l. Takataka		Flesh	.....

THE FLUID

From the few springs on the islands water for drinking was collected in coconut shell vessels. However, the main beverage of the people was the fluid of the coconut obtained from the *rau*, *kaipu*, *ni mata pana'pana*, *ni mata*, and *ni motomoto* stages of growth. As the coconut grows luxuriantly on all the islands except some of the rocky islets, water was always close at hand, albeit it was on the tops of trees instead of on the ground. The introduction of metal tanks and concrete reservoirs to catch rain water from corrugated iron roofs has of late years made water more available. The coconut, however, still continues to afford an important part of the drinking supply, and the fluid of the coconut is regarded not as a luxury, but as a necessity. A much larger quantity of nuts is used for drinking on atolls than on high islands. In fact, traders and government officials favor the use of rain water in order that more nuts may be available for the copra trade.

With a good supply of bearing coconut trees, the Tongarevan population could subsist without fresh water. The fluid of the coconut could supply all the fluid needed for drinking purposes. In the cooking oven no water was used. Food, such as fish, was washed in the waters of the lagoon. The various food preparations from the coconut or the hala came from clean fruit that needed no washing. The clothing could not stand washing and when necessary, it was freshly made from new material. The people of both sexes lived much of the time in the bath provided by the sea and the lagoon. Where fresh-water pools existed, as on Mangarongaro, the people availed themselves of the opportunity of washing in them, but cleanliness of person did not depend upon them. There was thus nothing to make fresh water an absolute necessity to human existence.

During my expeditions to the various islands around the lagoon the older men always insisted on taking some of the younger men to "climb for water." At appropriate intervals, without being told, these young men procured drinking nuts for us. They examined the trees from the ground for nuts in the *ni mata* or *ni motomoto* stages, which provide the best drinking fluid. Failing these, they had recourse to the younger stages and always apologized for them.

FOODS DERIVED FROM THE FLESH

The flesh of the coconut may be eaten in its natural state in all stages from the immature soft *kaipu* to the hard *takataka*. People working on land away from their homes, when they have drunk the fluid from the drinking

nuts, break up the shell and eat the flesh, which is readily detached with the fingers or with a piece of shell. The flesh is eaten with as much satisfaction as the consumption of bread gives to people of other cultures. The midday meal was unknown in olden times, and the eating of the flesh from the drinking nuts appeased hunger between the morning and evening meals. Similarly, the fisherman is satisfied with a few coconuts that he carries out in his canoe. If fish or shellfish are available, they are utilized to supplement the coconut flesh, for an appetite can always be developed when circumstances provide extra material to satisfy it. The harder *katinga* flesh of the *sakari*, *uto*, or *takataka* was also eaten uncooked, a *kasi* seashell being used to remove the flesh in appropriate mouthfuls.

As shown in Table 8, the following dishes are prepared from the coconut at four stages of its growth:

1. *Suisui*. A nut in the *ni mata* stage is opened and the fluid is poured off into a container. The flesh is grated with the hand *tuai*. The fluid is poured back and the grated flesh is mixed with it. The mixture forms *suisui* which is eaten uncooked, "ka kai mata." Some of the harder people looked upon the *suisui* preparation as an unnecessary refinement. Hence the song:

Ei aha e varuvaruhia ai ki te tuai?
E hungahunga i e.
Saroa ki te kasi,
Romia ki te rima
Kia uru ko te sumu,
Kia reka te kaki,
Kia papa te manava,
Kia papa te moe.

Why grate with the hand grater?
The pieces are too small.
Scrape with a sea shell,
Squeeze with the fingers
That the oil may enter,
That the throat be sweet,
That desire be fully satisfied,
That sleep be sound.

2. *Ni varu*. The *ni mata* flesh is scraped with a hand grater, and the fluid replaced. The top shell is replaced as a cover. The shell with the grated flesh and its own fluid is placed on shredded husk laid over the hot stones of an oven, the oven is covered, and the preparation cooked. The *ni varu* is the preparation that Lamont (15) so frequently refers to as "neu oara," and which seems to have been his favorite food on Tongareva.

3. *Ni ta*. The flesh of the nut in the *ni motomoto* stage is grated with a hand grater within the shell. A nut in the *kai pu* stage is stripped of its husk in such a way that the *karisi* at the stalk end is left adhering to the shell. The *karisi* is grated with a hand grater and mixed with the grated *ni motomoto* in its shell. The preparation derives its name from *ta* (to mix), because of the mixing of two ingredients derived from different stages. The *ni ta* is eaten uncooked. Lamont (15, p. 153) refers to a preparation which he terms "poey" (poi):

"The 'moto moto' is the ripe cocoa-nut, with the husk still green, and from it is made the 'poey,' in the same manner as the neu oara, only more coarsely scraped. This is commonly dressed in wooden bowls at their feasts, when there are many to be served, and it is not considered so delicate as the 'neu oara.'"

4. *Roro*. The flesh of the coconut at the *sakari* stage, when minced or scraped, may be eaten uncooked by people with good teeth. *Roro* is the liquid expressed from the grated flesh of the mature nut. *Roro* serves as a food, a drink, and a medicine. It is usually referred to by Europeans as "coconut cream." The *sakari* may be grated with the coral grater (*kau tuai*), but in olden days the flesh was usually scraped out in fine, thin strips with a *kasi* shell. The older generation of women were very expert and quick in the use of the *kasi* shell and rather despised the *kau tuai* grater, which is probably a

fairly recent introduction. The scraped material is collected in a wooden bowl until a sufficient quantity has been prepared. The beaten green husk of a *ni motomoto* is used as a strainer; the husk of a mature nut is too dry. The husk is opened out into a flat layer and a quantity of the grated flesh is placed upon it. (See pl. 1, *A*.) The husk is folded around the flesh and held in the two hands, the right hand vertically above the left. The round wooden *roro* bowl is placed below, and by short, sharp twists with the hands working in opposite directions the liquid is expressed into the bowl (pl. 1, *B*). By the short, quick twists the creamy liquid is caused to froth and issue between the fingers to run down into the bowl. This special form of wringing is termed *viaha*. A froth forms on the surface of the liquid in the bowl. The process is continued until the liquid reaches the rim of the bowl and the froth stands well above it. The higher the froth, the greater is the success of the operation. This method of raising a froth differs from anything seen in the Cook Islands and is not known in the neighboring atolls of Manihiki and Rakahanga. It seems to be a local technique that has become important as a means of social expression.

The main use of *roro* is as a drink. It contains much oil and acts as a purgative, and though its use at social gatherings is the more important, its purgative properties are recognized. A pregnant woman is given a bowl of *roro* a day or so before confinement for the purpose of cleaning out the bowels and hence assisting delivery.

Roro is also used as a relish to mix (*ta*) with other foods. Though the fluid in the mature nut lessens in quantity and is unfit to drink, it may be used to moisten the grated nut and so to assist in extracting as much of the oil as possible. The straining process with the husk strainer is termed *tatau*. Lamont (15, p. 153-154) in speaking of "ororo" says the vegetable part (*karisi*) of the young nut is added, "the acid of which produces slight fermentation. A proper proportion of cocoa-nut water is added, with a small quantity of *neu mata*. Some of this mixture is placed in the husk of a certain cocoa-nut, after being well pounded, washed, and cleansed of its powdery portions, leaving only a fibrous substance, and the juice is expressed with a churning motion, producing a white, milky substance, which, as it increases in the bowl, foams up like new milk from the cow, and has a pleasant look."

5. *Kopani ota*. The grated nut before the *roro* is expressed is termed *roro sakari*. The flesh, after straining it, is termed *ota*. The *ota*, after all the fluid is expressed, is removed from the strainer into a receptacle. After all the *roro* has been expressed from the prepared quantity of grated nut the *ota* is placed in an empty coconut shell and cooked in an oven. The preparation is then termed *kopani ota*. The cooked preparation will keep for a considerable time. It was therefore used on journeys, and the Tongarevans believe that it was used by Hiro and other navigating ancestors on their long deep-sea voyages. The correct food complement (*kinaki*) of *kopani ota* was dried *Tridacna* (*kopani ota te kinaki he pasua maro*.)

6. *Takarari*. The *uto* may be eaten uncooked and is palatable. For *takarari* the *uto* nut is husked, and the contents cooked in an oven without opening the shell. A *ni mata* is opened and grated with a hand grater. The cooked *uto* is extracted from the shell, pounded, and mixed with the grated *ni mata* and its fluid.

7. *Kohu*. The cooked grated *ni mata* forming the preparation called *ni varu* is mixed with *roro* cream and mashed cooked *uto*. Other *uto* are cooked whole and cut at the top to open them out. The *kohu* is then used as a filling.

8. *Ipu soka*. Cooked *uto* is mashed up in an empty coconut shell, mixed with *roro* and then cooked in an oven for *ipu soka*.

THE HUSK

Besides the *karisi* part of the husk (*puru*), the ordinary fibrous part of the husk of the variety of coconuts called *mangaro* may be chewed direct from the shell or after cooking in an oven. A sweet juice is extracted

which is not unlike that of sugar cane. The correct food to eat with the sweet husk is *ota*. As *ota* is the grated mature coconut flesh from which the liquid has been expressed by wringing to provide *roro*, the food is somewhat dry. The liquid from the husk thus forms a natural complement (*kinaki*). Lamont (15, p. 153) says, "Then there is the 'mangaro,' a particular kind of cocoa-nut, the husk of which when chewed has a sweet flavour like sugar-cane, and when cooked is very sweet and nutritious."

HUSKING IMPLEMENTS

For harvesting and husking coconuts special implements have been devised. The husker (*ko*) is a unique implement because of its shortness and because it does not have one end driven into the ground to fix it in a stationary position. For making the husker a stout piece of *ngangie* wood about 1.75 inches in diameter is selected, and a section about 16 inches long is cut off. One end is cut off blunt to prevent penetration into the ground, and the other end is sharpened to a long mesial point slightly flattened on the two opposite sides. (See pl. 1, C.)

The husking of coconuts is man's work. To use the short husker the man seats himself on the ground and places the blunt end of the husker on the ground between his feet, where it is kept upright by the pressure of the soles of the feet turned against the sides of the implement (see pl. 1, D). The surrounding husk envelope is roughly triangular in section so that three prominent longitudinal ridges, corresponding to the apices of the triangular section, are apparent. As the object is to remove the husk in longitudinal sections, one of the ridges is usually selected as the first section for removal. The coconut, held at both ends with its long axis horizontal, is lifted with both hands and brought down sharply on the point of the implement. Care is taken in judging the line of penetration in order that the point may pass through the segment on the near side of the shell. If the blow is not sufficient for the point of the husker to pass right through the husk the nut is raised again with the husker sticking in it, and the nut is brought down again so that as the blunt end of the husker strikes the ground the point is forced through the husk. After the husker has been driven through a section of husk on the near side of the nut the section is removed by levering the nut outward and downward away from the implement. The impaled section splits longitudinally and is torn from the nut. Other sections of the husk are dealt with in a similar way until the shell is cleared.

In the high volcanic islands, where there is a greater variety of vegetable foods, one method of husking prevails, as the sole object is to remove

the husk. In Tongareva the use of the *karisi* part of the husk as food has led to different methods of husking in order that the *karisi* may be left attached to those nuts in which it is used as food. Owing to differences in development of the husk fibers, three methods of husking have been developed:

1. In the *rau* and *kaipu* stages the coir fibers have not developed enough to form a firm attachment to the *karisi* part. The point of the husker is driven in on the apex side of the middle line. Three segments comprising the longitudinal ridges, and then the intermediate sections, are removed. At the apex the husk is thinner and the segments torn off retain the same thickness, so that they run off toward the base, leaving the *karisi* intact. Any extra fibers are trimmed off with shallow penetrations of the point of the husker. The trimmed nuts are brought into the kitchen with all the food parts intact, the nut with the contained fluid and flesh, and the outer *karisi* attached to the shell.

2. The *ni mata panapana* is a later stage in which the husk fibers adhere more closely to the *karisi* part still used as food. The preceding method of husking is inapplicable, as the husk segments would tear off much of the *karisi* and so waste it. The base end of the husk is therefore pierced all around with short slanting punctures by bringing the nut down on the husking point with light blows not sufficient to cause the point to pierce right through the husk. The husk sections are then pierced through in the middle line. On the apical end the husk segments run off close to the shell, but on the thicker base end they run off at the punctures already made, and the *karisi* is thus left intact on the shell.

3. In the *ni mata* and succeeding stages, the *karisi* is not used, and it is unnecessary to leave it intact on the shell. The point of the husker is thus driven through near the base end where the husk is thicker, in order that as much husk as possible may be removed with each segment.

The three methods of husking were demonstrated by Pa of Omoka, the oldest man on the atoll. He held that, seated on the ground with the short husker, an expert could husk more coconuts than an expert in the standing position with the longer fixed husker of the high volcanic islands.

Because of the scarcity of timber, the short huskers were kept by the owners. A man going out into the plantation to get nuts always carried his husker with him, but the advent of the bush knife, with which any piece of wood may be sharpened, has now made the carrying of huskers unnecessary.

CARRYING POLE AND CLIMBING BANDAGE

Permanent carrying poles (*kau amo*) with a notch at either end are made of *tou* or *hano* wood. Temporary ones are formed from the midrib (*pararaha*) of the coconut leaf. Since the advent of the bush knife, which is now an almost indispensable article for one going out into the coconut groves, the old permanent carrying poles are not used.

In the islands where the *hau* (*Hibiscus tiliaceus*) grows, its bark is used to form climbing bandages. In Tongareva a substitute is found in the skin from the part near the base of the upper surface of the coconut leaf midrib.

Strips of this material (*tari*) are beaten and twisted to render it soft and so to prevent it from snapping. An appropriate loop is formed, and the ends tied together with a reef knot. With the loops over the dorsa of the feet the climber is able to take a purchase against the trunk of the tree. By raising himself with the hands and lifting his feet, the climber can ascend the loftiest coconut tree.

HALA (PANDANUS)

The hala (Tongarevan, *hara*), said to have been introduced by Mahuta, grows plentifully on all the islands. The fruit (*kahui hara*) forms a useful food. The immature fruit (*paraoa*) may be eaten. The ripe fruit, which is fragrant, is pounded against a tree trunk or stone to cause the keys to separate. The softer inner ends of the keys may be eaten uncooked, and the hard outer ends (*penu*) be discarded. The *penu* contains a small kernel (*kiko*), about the size of a peanut, which is extracted by pounding (*tuki*) on a rock and is much sought after by children and adolescents.

The keys of the ripe fruit may be separated and cooked in an oven, which renders them much softer. As in the uncooked fruit, the inner ends of the keys are chewed.

Two foods are made from the fruit:

1. *Para*. The separated keys of the ripe fruit are scraped on the *sahu*. The fleshy parts (*para*) are collected in a bowl or on a mat placed below the implement. The *para* may be cooked in a covered coconut shell.

2. *Makano*. The grated *para* is mixed with the strained grated flesh of the mature coconut which is left after making the *roro* cream. The coconut gratings are termed *ota sakari*. The mixture then cooked in covered coconut shells is termed *makano*. It is referred to in the following song:

Hoi aue, hoi aue!
Te rongorongo kino o Atea,
Ko te makano i langia ki te tumasi.
E rawa te tautai e—
E moe te one e—

Alas! Alas!
An evil rumour comes from Atea.
The makano has been distributed to all.
The fishermen have plenty
And sleep on the sand.

The growing ends (*kaihara*) of the aerial roots of the hala which have not reached the ground are soft and juicy. Some root ends are quite sweet, and the degree of sweetness is said to coincide with the sweetness of the fruit, which varies with plants. On occasion, the aerial root ends may be cooked in the oven or chewed. The stringy fibers are used for the mesial three-ply braid commencement of the *pakirere* sleeping mats.

GENERAL OBSERVANCES

MEALS

A forenoon meal and an evening meal are the routine of everyday life. The evening meal is the more important, the social event of the day. Fish that have been caught during the day are cooked, and if the catch has been large the quantity cooked is correspondingly lavish. Fish or shellfish are the flesh complement to the coconut preparations. The men have returned from the labors of the day and are in the proper frame of mind to enjoy themselves. The food cooked by the women is placed before the men, who seat themselves on mats spread on the gravelled space before the huts. The heat of the day is over, and during the meal the gossip of the day is recounted. Laughter and enjoyment prevail, and the members of the family are united in social intercourse, with no immediate worries.

The morning meal is of necessity not as elaborate as the evening meal, and little time is spent over it, as the activities of the day have to be faced. It is usually a cold meal of uncooked preparations of coconut. If food has been left over from the evening meal, the remains furnish the early breakfast. The men are anxious to get out to finish their activities before the time of midday heat. If the breakfast has been scanty, a forenoon meal is cooked after the return from the plantation with the day's supply of nuts, at about the hour of eleven. The children are often sent out into the food plantations (*kainga*) to get the supply of nuts while the men go fishing or busy themselves with other activities.

The flesh of the drinking nuts used in the plantations is never wasted, but eaten on the spot. Such irregular snacks take the place of the third midday meal of higher cultures. On my expeditions to the various islands both young and old men scooped out and ate the flesh of the drinking nuts, even though we had brought food with us for a midday meal. It had become a habit not to waste the flesh of the nuts. When we came upon a hala tree with ripe fruit the use of the fruit as food was always practically demonstrated to me.

FEAST FOR VISITORS (WARUSANGA)

The Tongarevan feast prepared for visitors derives its name, *warusanga*, from the verb *waru* (to grate), referring to the grating of coconuts to make *roro*, the most important item in the menu. The command by the chief host, "Ka waru te warusanga," literally means "Grate the grating," but it has come to mean "Prepare the guest meal." After such a command the guest meal must be preceded by a bowl of *roro*. (See p. 114). The *roro*

liquid is expressed into the round wooden bowls until the froth rises high. A brimming bowl is placed before each guest of distinction, who is then supposed to quaff it without pausing to take breath. By such a display the guest indicates his appreciation of the honor conferred upon him. The preliminary bowl of *roro* is the highest form of hospitality a host can pay to his guest.

After the draught of *roro* the meal proper is served. Preparations of cooked coconut in their shell containers, with the caps in position, are placed in food baskets and heaped up with cooked fish. The baskets are placed before the guests, who help themselves. Drinking nuts are also provided. The food receptacle for visitors is the *raurau* basket, which is termed the *hariki o te kai*. In arranging coconuts in the basket the more mature nuts and the sweet husk (*mangaro*) are placed below, and the drinking nuts above. It takes as many as four persons to carry some of the large baskets filled with food.

The more the baskets are heaped with food, the greater the display. The greater the display, the more the guests are honored, and the greater the prestige that occurs to the hosts. Such feasts are recounted in detail by visitors on their return, gossip carries the tale around the islands, and reputations are established. On the other hand, lavish hospitality creates an obligation on the part of the recipients, and they in turn endeavor to equal if not to excel the hospitality they have received when opportunity occurs through a reciprocal visit. Some displays of hospitality are competitive, and though food supplies may suffer a severe drain, the mutual visits help to even matters up. Food as a basis of friendly intercourse plays a most important part in Tongareva, as it does in all parts of Polynesia.

The use of the *roro* as a beverage must be stressed. In Samoa and Tonga *kava* is the ceremonial beverage which precedes social meals and functions. In Tongareva, where the *kava* plant does not grow, the desire for a beverage to express a similar, ingrained sentiment has resulted in the use of the unfailing coconut. Thus, a flavoring agent for food was elevated to the high status of a beverage. The demand for the beverage caused the women to develop a new technique; the long, steady straining movements used in expressing the ordinary coconut cream were altered to the short, sharp movements that made the liquid froth. Just as in Western custom ale may be poured from a height to cause froth to rise at the top of the glass, so in Tongareva the excellence of the *roro* is judged by the height of its froth.

The social function of *roro* has undoubtedly affected the form of the bowl. The round bowl (*kumete tatau*), which has a projecting lug on one side perforated for a cord loop by which the bowl may be hung up, was

quite satisfactory for ordinary use. To fit the bowl for use as a drinking flagon a low unperforated lug was made on the side opposite the suspensory lug. In clasping the bowl with both hands the forefingers obtain support on either side of the bowl from the two projections as the bowl is raised to drink. The second projection is not essential, but the craftsmen have added it for the accommodation of drinkers at the social ceremonies. (See pl. 8.)

The following song, composed by Umutoru, is sung while some one is wringing out the *roro*. (Such songs are termed *tauranga*, *putuki*, *pesepepe*, and *parapore*.)

The Roro Song of Umutoru

E roro au e	Oh <i>roro</i> for me
Kia inu i te roro,	That I may drink
Kia ora hoki au,	And so be satisfied.
I tupu aniania,	I grow fatigued,
Toku hausanga ia ko te roro.	But my strength will return through the <i>roro</i> .
Kia nui taku roro	Let my measure of <i>roro</i> be full
Kia makona au, kia taea,	That my thirst be quenched, and desire gratified,
Toku kava ia ko te roro	For my <i>kava</i> is <i>roro</i> .
Kia matakivikivi te ipo wahine	She may turn her face aside, the woman,
Te rima tumoa i te tatau.	Whose hands are skilled in raising the froth with the wringer.
Hana mai ma te riri ma te kava	She may come with wrath and bitterness
Ma te ongatia.	And disgust with having to labor.
Po kowai te tatau o te roro?	Ah, who then will prepare the <i>roro</i> ?
Viaha toku mea	Ah, wring gently to bring up the froth
Kia inu atu au	That I may drink.
E hano ki ko	Retire to yonder place
Kia mamaru ko te ra	Until the sun is shaded,
E hano mai ai,	Then return to me.
Maku tahi e, mau tahi.	I will give something you must reciprocate.

In explaining this song Pa stated that Umutoru supposes that the lady whom he wishes to prepare the beverage may be unwilling to go to the trouble. He urges her to comply and promises that if she does so and returns in the afternoon he will give her something. The gift is not a material one, but "tetahi tika i roto i te hare vananga" (something of benefit from the house of learning). From his store of knowledge he will entertain her, and she in return must receive his attentions with favor. The eighth line in the song, "For my *kava* is *roro*," is significant, indicating that a memory of *kava* was retained and that *roro* was a substitute.

An unexpected guest may cause his host a good deal of embarrassment and shame when the larder is low. The following song expresses the apologies of a host, who makes his physical infirmity the reason for the lack of food.

Apology for Lack of Food

Ka kore aku tukunga i raua ai,
Kua ngaro otioti te hai o taku hangota,
I reira taku tino paipai,
Pau ai oku ivi,
Pokia iho au, te peka o te atua.

Toku tuaro pakinga,
Ki te niho o te toka, i tai nei,
E atua ko Manini,
E atua ko Tokona,
E atua ko Tahora
I puke maua ki te tara o Pakurakura

Ki te tau o Saupewa
Pau ai oku ivi,
Pokia iho ai au, te peka o te atua.

Te ngako o te tukoro
Te ngako o te marau
Te ngako o te veve,
Pau ai oku ivi,
Pokia iho ai au, te peka o te atua.

My store of goods is not sufficient,
Lost completely is my skill in fishing,
By reason of my weakness in body,
My bones are consumed,
I am overwhelmed, I, the companion of
the god.

I look in apprehension,
Toward the reef edge of the adjacent sea.
A god is Manini,
A god is Tokona,
A god is Tahora,
We two tried to obtain (food) from the
rocks of Pakurakura

From the land point of Saupewa
My bones are consumed,
I am overwhelmed, I, the companion of
the god.

Ah, the fat of the *tukoro*,
The fat of the *marau*,
The fat of the *veve*,
My bones are consumed,
I am overwhelmed, I, the companion of
the god.

The song may be sung also when, although there is no lack of food, the host assumes a ceremonial humility which draws attention to the quantity of food provided, and thus adds to his own prestige.

ANGLING FOR VISITORS

A custom called "Te tukau o Tautai-tini" was demonstrated at the Omoka village. Judge Ayson and I, with others, were invited to a feast and given seats outside the village meeting house. Our hosts, armed with fishing rods to which cooked *uto* was attached as bait, but without hooks, gathered a little distance away. They also carried baskets containing cooked *uto* to serve as ground bait. The visitors were regarded as a shoal (*papa*) of bonito. The leader of the fishermen, who acted as observer, pretended to see us for the first time. He called, "Teia ua papa e" (Here is the shoal). The party then replied in unison, "Teia ua kake e" (Here they have arrived). The fishermen then advanced in our direction, and when they were close enough they swung the rods toward us to bring the bait in front of our faces. We were supposed to seize the bait with our mouths and pull vigorously as if we were fish—a performance that created a good deal of merriment. Meanwhile, the fishermen were chewing the cooked *uto* which, when sufficiently soft, they drew out of their mouths and started throwing at us as ground bait. This they enjoyed exceedingly. A lady angler who was paying particular attention

to a member of our party struck him on the bridge of the nose with a handful of the soft mush which splashed laterally and filled both his eyes, to the intense enjoyment of the skilled angler and her friends. While the general marksmanship was not so expert, it was accurate enough at the short distance to prevent any of us from escaping hits. What may have been enjoyed by a man in a *maro* girdle was awkward for one in a white suit. However, the demonstration was counted a success, and after scraping off the adhering ground bait we were entertained with the feast. At the feast, which contained a lavish assortment of coconut preparations and fish, the apology for poverty was sung.

SEX DIFFERENTIATION

Women usually prepare the food and cook it, but the men sometimes scrape the mature coconut with a *kasi* shell. Men hold the mature nut between their knees while scraping the flesh. Women, however, have to adopt a special position. Sitting on the ground, a woman's left leg is bent toward the body and the right leg crossed over the left thigh. This forms a small triangle bounded by the bent left knee and the right leg. The mature nut is held firmly in the triangle and the scraping proceeds. Pa said it was not right for a woman with food so close to have her thighs apart. When she crosses her right leg over the left thigh with the food to the far side the intervening right leg forms a barrier between the female sex organ and the food, which satisfies Tongarevan psychology.

PLAITING

The craft of plaiting is still used in making such domestic necessities as roof sheets, wall screens, mats and baskets. The advent of Western culture has not appreciably affected the need for these articles. In the past plaiting also entered into the making of shoulder capes, as no form of weaving was used.

The materials used are lauhala (leaves of *Pandanus*; Tongarevan, *rau-hara*) and coconut leaves. The *Pandanus* is evidently of one species which grows wild throughout the islands, and no particular species is cultivated, as in the Cook Islands. Lauhala floor mats are made, and the mention of them by Lamont (15, p. 114) proves that lauhala was used in plaiting before post-European contact with other islands. The fibers of the aerial roots are also used in conjunction with coconut leaflets in a particular form of mat. The coconut leaf (*nikau*) supplies the material for roof sheets, wall screens, baskets, and even some kinds of sleeping mats. The leaflets (*kota*) form convenient wefts; the midrib (*pararaha*) to which these are attached provides an already fixed commencent edge for the plaiting. In some articles the complete

midrib (*pararaha*) is utilized, and in others a strip bearing the leaflets of one side is split off from the main midrib. The leaflets may be opened out to their full width during plaiting, or kept closed. The "open leaflet" wefts have the leaflet midrib running down the middle of the weft; they are wide; and the weft is the natural thickness of the leaflet. In the "closed leaflet" the leaflet midrib forms one edge of the weft, which is thus half the width of the open leaflet, but twice its thickness. The use of closed or open leaflets effects the plaiting technique and gives the craftswomen a certain freedom to create different articles for specific uses.

THE PROCESS

In plaiting, two sets of crossing wefts have to be provided, which, starting from the same commencing line, have to be crossed diagonally to right and left. The wefts running toward the right are termed "dextral," and those to the left, "sinistral." In crossing, the wefts are passed alternately above and below one weft in check plaiting or alternately above and below two or more wefts to form "twilled" plaiting. With the open leaflets check plaiting is used, and with the closed leaflets twilled plaiting is used. In making the Tongarevan plaited articles, the twilled-two is the only twilled technique used, but it is usual for the plaiter to commence with one or two rows of checks to fix the wefts in position, and then to complete the article in twilled-twos.

In the natural coconut leaf the leaflets are directed obliquely out and toward the tip end of the leaf. The plaiter places the leaf strip transversely with the midrib strip toward her and the natural upper surface of the leaf up. A strip from the right side of the leaf will, in this position, have the leaflets directed naturally toward the left at an oblique angle to form natural sinistral wefts. A midrib strip from the left side of the leaf has the leaflet directed in the opposite direction, and the leaflets form natural dextral wefts. In plaiting with the leaflets from one side of a leaf the alternate leaflets have to be bent at right angles to their normal direction to provide the crossing elements required. If only one article is required at the time, the plaiter cuts off a section of coconut leaf of the required length from a part not too near the butt or the tip, in order that the leaflets may be even and long. She takes the left side of the leaf in preference to the right and splits off the strip, which, when placed in position before her, provides a set of natural dextrals. It is easier to work from left to right with naturally directed dextral wefts.

Commencing on the left, the plaiter interlaces the adjacent wefts until she gets a sufficient depth to form a convenient working section. The right edge of the working section will be termed the working edge. It is composed of a number of dextral wefts termed working dextrals, which are separated into

two sets by the left hand: alternate ones, in check plaiting; and alternate twos, in twilled-two plaiting. One set of working dextrals is left recumbent, whereas the other set is raised. Into the shed formed by separating the two sets a single sinistral weft is laid by the right hand. The working edge is thus obliquely inclined upward and to the left from the commencement edge formed by the midrib strip, and it is defined by the last sinistral weft (working sinistral) placed in the shed. The next movement consists of dropping the top raised working dextral, picking up the recumbent dextral below it, and so alternately dropping and picking up the two sets of working dextrals from above, downward. When the two sets have thus changed position the last added sinistral will have been fixed in the plaiting. The last movement besides fixing the sinistral weft has, however, prepared a shed for the next sinistral. After each movement the next two leaflets to the right are added to the working edge. Of these two, the one on the right forms the sinistral and has to be bent with the right hand over the leaflet on its left, which thus forms the lowest of the working dextrals. In Tongareva the new sinistral is passed over the new dextral; and it necessarily follows from the method observed at the start that the lowest of the working dextrals from the last movement is raised. The newly added dextral must be left recumbent, and this has been done by crossing the new sinistral above it. A convenient number of working dextrals in check plaiting with the open leaflet is six or eight. With each movement the top dextral is dropped and ceases to act as a working dextral in the working section being plaited. The new dextral added from below brings the number of working dextrals to normal, and so the working section works across to the right with the same number of working dextrals in each movement. The depth of the working section remains the same throughout.

In check plaiting with the open leaflet the one side of the coconut leaf midrib forms the commencement edge. The open leaflet makes a weft wide enough for a close surface, which, however, on drying, shows spaces between the wefts. Because of the one thickness of the leaf the article is not strong and is soon discarded. However, material is abundant and manufacture simple, and articles made with the open leaflet are only meant to serve the immediate purpose. As other needs arise, fresh articles are quickly made. (See *raurau* basket, fig. 15.)

The closed leaflet is used to make stronger articles which are used for a longer period. The closed leaflet, however, is only half the width of the open leaflet, and if the method of crossing alternate leaflets from one side of the leaf midrib were used, the spaces between the wefts would make the plaited article too open, so that small objects would drop through. To get a close plait with the closed leaflets the two sets of leaflets from each side of the

leaf are used. All the leaflets from one side form the dextrals, and all the leaflets from the other side form the sinistrals. There are two forms of commencement edge which make this possible, the full midrib commencement and the two-strip commencement.

The full midrib commencement (fig. 13) is used in making wall screens. The leaflets from one side of the midrib function in the normal direction as dextrals or sinistrals, and those from the opposite side are bent across the midrib and interlaced in the opposite direction.

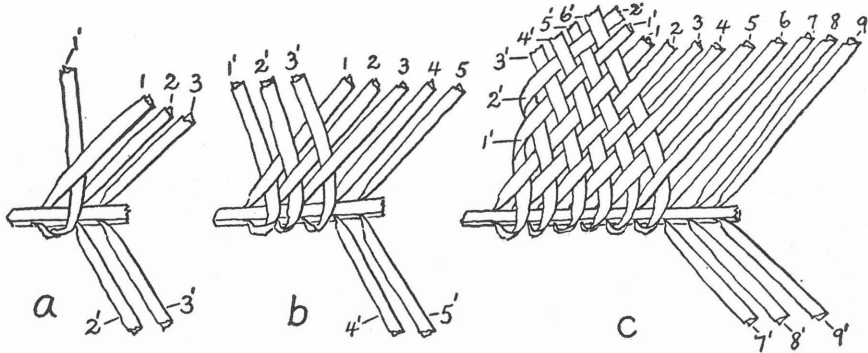


FIGURE 13. Plaiting technique, full midrib commencement. *a*, full leaf section with natural dextrals (1, 2) on far side; leaflets on near side form sinistrals, doubled over midrib and passed obliquely under its opposite dextral; first dextral (1) raised by left hand while opposite leaflet (1') is bent over midrib and passed under raised dextral with right hand. *b*, next dextral (2) raised, but dextral (1) above it left down to comply with check technique; opposite leaflet (2') bent over leaf midrib and passed under dextral (2) and over 1; next dextral (3) raised; opposite leaflet (3') becomes working sinistral. *c*, check technique has been established and full working edge of six dextrals (1-6) built up; top dextral dropped with each movement and new dextral picked up; leaflet from near side of leaf midrib placed in shed formed as sinistral; first two sinistrals (1', 2') are twisted in at left edge to show how side edges are formed with half-twist of leaflet as they are turned in to function as dextrals. Plaiting carried on for full length of leaf segment.

The two-strip commencement (fig. 14) is used in the better types of basket. The midrib is split on either side so that strips bearing the leaflets are separated from the intermediate thick part of the midrib, which is discarded. To form a better edge, the leaflets of each strip, following their natural direction, are twisted over the leaflet immediately in front. The two strips are then placed together, the sinistral bearing strip above the other.

The plaiter keeps an extra section of coconut leaf beside her. In plaiting baskets with the closed leaflet, if she finds that the space between two wefts in the same direction is too great for neat plaiting, she tears a leaflet off from the required side of the leaf section and includes it as an extra weft by placing the butt end between the two midrib strips forming the commencement edge. (See fig. 17, *a*.)

Side edges are formed by turning in the sinistrals on the left and the dextrals on the right as they successively reach the left or right end of the plaiting. The weft may be twisted over as it is turned in, thereby exposing the opposite side of the leaf, or with closed leaflets they may be bent in directly without turning the weft over.

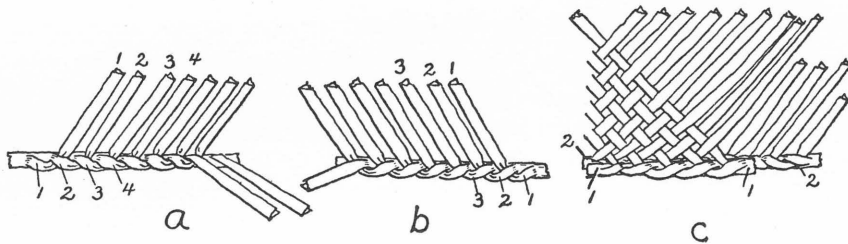


FIGURE 14. Plaiting technique, two-strip commencement. *a*, leaflet twisted forward in natural direction under leaflet (2) in front, then 2 under 3 and 3 under 4; twisting continued toward right throughout length of leaf. *b*, strip from other side of leaf dealt with similarly but in opposite direction, from right to left, which follows natural direction of leaflets; leaflet 1 under 2, and 2 under 3, and so to end of strip. *c*, the two strips placed together with sinistral-bearing strip (1) above other; sinistral strip (1) cut away on right to show twisted dextral strip (2) beneath; the two sets of leaflets now cross each other naturally and are plaited in check as shown on left of figure.

The finish of the plaiting is formed by braiding the leaflets in three-ply. If the finish is an edge, such as the rim of the *raurau* baskets, all the weft ends are included in one course of a three-ply braid. Where the finish forms the functional bottom of a basket the weft ends from both sides of the basket form a double quantity which cannot be neatly braided in one course. The sides are brought together, and, holding the plaiting with one end away from the worker, it will be found that on each side one set of wefts inclines toward the plaiter and the other set away from her. Commencing at the far end, the wefts inclining towards the worker on either side are plaited in the usual three-ply braid. On reaching the near end, the basket ends are reversed. It will be found that the remaining set of wefts on either side is now inclined toward the worker. The end of the braid, which is now at the far end, is doubled over, and the braid is continued toward the worker by plaiting in the remaining wefts alternately from either side. When the near end is reached the weft ends are continued on as a braid tail and the end knotted. This will be referred to as the two-course braid finish, in contrast with the single braid finish mentioned above. (For details of two-course braid finish see 29, pp. 191, 192.)

COCONUT SHEETS, SCREENS, AND MATS

For the coconut leaf roof sheet the leaf is cut into 5- or 6-foot sections and split down the middle of the midrib. The half leaf from the left side of the leaf is plaited from the left in the conventional way, as the leaflets form natural dextrals. The open leaflets are plaited in check for a depth of about ten inches, the side edges being turned in by the half-turn method. The far edge of the plaiting is formed by the simple crossing of the wefts. Sheets from the right side of the leaf are plaited from right to left, as the natural direction of the leaflets is sinistral. The right hand arranges them into sets of working sinistrals which form the plaiting edge, and the left hand bends the alternate leaflets in from the midrib edge to rest in the shed formed. The method is the same as that used in the Cook Islands and Samoa (29, p. 170).

The single wall screen (*pataro*) is made of a section of coconut leaf 3 or 4 feet long, with the leaflets left intact on either side. The commencement is the full leaf commencement (fig. 13) in check, but after one row of dextral checks the plaiting stroke is changed to a twilled-two in horizontal rows. The side edges are turned in with a half turn (fig. 13, *c*). The leaflets are kept closed, and the leaflet midribs form the right edges of both dextral and sinistral wefts. On reaching a depth of ten inches and after the twilled plait has been changed to two rows of check, the leaflet ends are finished off with a single three-ply braid. (For technical details of single three-ply braid finish see 29, p. 182.)

The double wall screen (*pataro mangarua*) is made by plaiting two wall screens of the single *pataro* type described above, but leaving the wefts free at the far edge when the depth is secured. The two sheets are then placed side by side with their unfinished far edges together in a line longitudinal to the worker. Of the two sets of crossing wefts that form the edges on either side, one set will be directed toward the worker. Commencing with those at the far end, the proximally directed wefts are plaited alternately from either side into a three-ply braid, and the wefts directed away from the worker are temporarily disregarded. When the braid reaches the near end, the wefts are continued on as a free tail and fixed with an overhand knot. The ends of the plaiting are now reversed, and the remaining set of free wefts on either side will be found to be directed toward the worker. A second braid is commenced at the far end, and the free wefts added alternately from either side. At the near end the wefts are continued on in a free braid tail which is tied at the end with an overhand knot. The braid tails at either end are doubled back under the plaiting, passed through under some of the wefts, and tucked away. (See pl. 2, *A*.)

The sitting mat (*tapakau*) is made from a coconut leaf section about 2 feet 6 inches long. The leaflet-bearing strips are separated from either side

and the leaflets twisted over each other at the midrib strip as shown in figure 14. The strip with the natural sinistral wefts is placed above the other and fixed together by two rows of check. The body of the mat is plaited in horizontal twilled-twos, and the side edges are formed by turning in the wefts without twisting up the other surface. When the plaiting reaches a depth of about 15 inches the far edge is finished off with a three-ply braid made in one course. The end of the braid is continued as a free tail, fixed with an overhand knot, and tucked back through the plaiting. (See pl. 3.) Most mats are made of two separate strips from opposite sides of the leaf; but a strip double the length of the mat may be split off from one side of the leaf, and after the leaflets have been twisted the strip is doubled on itself to provide the crossing wefts. The *tapakau* is a short mat, and the *tokotua* back rest is used with it. This was the mat which Lamont says was used in the open spaces before the houses. Mats are also spread in numbers on the floors of houses, and the sleeping mat is laid on top of them.

The oven cover mat (*toto umu*) is made exactly like the sitting mat, except that some are shorter and deeper. (See pl. 2, B, C.) It is used as a cover (*tapoki*) over food that is placed in the oven (*umu*).

The sleeping mat (*pakere rei*) is the best coconut leaf mat made. None was obtained, but I was informed that it is exactly similar in technique to the Manihiki *tapakau*, made as follows:

Lengths of the younger aerial roots of the hala (*Pandanus*) are cooked in an oven and then chewed to separate the fibrous material. The fibrous material is dried in the sun and used to commence a three-ply braid. Coconut leaflets are jerked off from the sides of the leaf so as to leave strips of the fibrous midrib attached at their butt ends. The leaflets are kept closed, and the free edges are split off with the thumbnail to form narrower closed leaflet wefts. The butt end strip of the wefts is added to the three-ply braid of hala fiber, a weft being added alternately on either side as the braid ply comes in from that side. The butt strips are long enough to be included in the plies and so fix the wefts to a mesial braid keel, much like the initial commencing braid in baskets and certain mats in New Zealand. As the wefts are added, the midrib edges are kept always to the one side. The wefts are added to the mesial braid for the required length. The braid is continued as a free tail for a short distance and then knotted.

The keel is laid transversely in front of the plaiter, and the wefts on the far side are plaited in check for a couple of rows. The body is then plaited in twilled-twos, and the edges are formed by the direct bends without turning over the other surface. As the depth is approached the plaiting stroke changes to a check for a few rows. The finishing edge is formed by a single three-ply braid. The mat is then turned, and the wefts on the other side of the mesial braid are plaited to form a section similar to the first, with a single braid finishing edge. In the Manihiki mat the mesial braid is 45 inches long and the mat is 23.5 inches deep on either side.

The mat is well made and neat in appearance. It is spread over the ordinary *tapakau* sitting mats and used at night as a bed.

LAUHALA MATS

For making mats lauhala (*rau hara*) is treated in the usual Polynesian way by drying the green leaves in the sun, scraping them, and then rolling the half leaves, from which the midrib and serrated edges have been removed. The rolls are stored until plaiting commences, when they are split into wefts. The wefts are termed *henu* (Maori, *whenu*); the wide wefts, *kiri maraea*. Plaiting with single strips of material is *patahi*; with double wefts, *parua*. Small mats used for resting are *piritua*; large mats for sleeping, *moenga*.

A large mat in Bernice P. Bishop Museum, 14 feet 6 inches by 13 feet 6 inches, was probably made to order for some European houses. The Tongarevan mat would be much smaller, as mats are not made to cover the whole floor space. Two strips of lauhala are placed together to form double wefts which average 0.5 inches in width. The plaiting stroke is the check, and the technique of commencing, plaiting, and finishing is similar to that of the Samoan *papa* mats (29, p. 214).

BASKETS

MIDRIB BASKET

All Tongarevan baskets or satchels are made of coconut leaf. None of the small satchels made of lauhala, so common in Manihiki, were seen, and if such are made, they are a modern innovation.

The unsplit midrib basket (*raurau*) for carrying food is in common use. (See pl. 4.) It is made from a section of unsplit coconut leaf in which the leaflets from both sides enter into the plaiting. The unsplit leaf midrib forms the bottom, and the upper edges are finished off with a three-ply braid which forms the rim. The first part of the technique consists of plaiting all the leaflets of one side of the leaf with a check stroke into a sheet, and the left and right side edges are turned in. The far edge is then finished off with a three-ply braid. (See fig. 15.)

The leaf is turned to place the unplaited leaflets on the far side of the leaf midrib, which is kept transversely before the plaiter. A second sheet to form the other side of the basket is now commenced. It is plaited with a check stroke like the first side, but the two ends are formed by interlacing leaflets through the side edges of the completed first sheet. The braid finish of the top is then completed. (See fig. 16.)

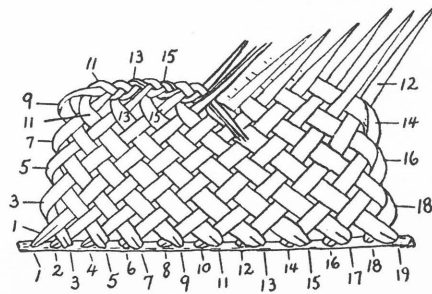


FIGURE 15. *Raurau* basket made from 2-foot section of leaf and carrying 19 pairs of leaflets, first side. Plaiting commences on left side of leaf with leaflets forming natural dextrals; leaflets after first (1) dealt with in pairs; leaflet on right treated as sinistral by being bent over its pair mate, which remains in its natural direction as dextral; of first pair (2, 3) right leaflet (3) bent as sinistral over left leaflet (2) which continues as dextral; similarly, leaflet (5) bent over 4, and so throughout; left edge formed by bending first sinistral (3) with half turn forward over next sinistral (5), and so successively as sinistrals reach left edge; full working edge of eight dextrals thus formed when sinistral (9) is placed in its shed; depth of the plaiting is carried along toward right; when last sinistral (19) crosses last dextral (18) right edge is formed by turning in dextrals successively to act as sinistrals; dextrals 18, 16, 14, and 12 successively turned in to form right edge and check sheet completed. Top edge finished by commencing braid on left with first three wefts (9, 7, 11) which form the three commencing plies; remaining wefts successively added, dextrals (5, 3, etc.) entering braid on near side and sinistrals (13, 15, etc.) passing under braid and then over to enter braid with far ply; on reaching right, braid continued as free tail and finished off with single overhand knot.

TWILLED BASKETS

Three types of twilled baskets are made, the *taunga*, *kete*, and *tupono*. All are made with closed leaflets; hence, the two leaflet-bearing strips from each side of the leaf are used to provide two natural sets of crossing wefts. The leaflets are twisted over each other at the midrib strip as in figure 14, *a* and *b*, and the two-strip commencement with the sinistral strip above is used as in figure 14, *c*. The free edges of the leaflet wefts are trimmed off to make the wefts of even width, and, should the spaces between wefts become too wide, extra single wefts are inserted to fill the spaces as they occur. The midrib strips form the rim of the basket. The baskets are plaited on the flat like a sheet, but the side edges are not defined as in the *raurau* basket. The free ends of the sinistrals on the left and of the dextrals on the right project beyond the plaited sheet, and they form two oblique side edges. As in the two-strip commencement (fig. 14, *c*), the two strips are fixed together by a single horizontal row of check dextrals, after which the plaiting stroke consists of a twilled-two. When the

plaiting has proceeded deep enough the two ends are brought together and joined as in figure 17.

After the strips have been joined together the two oblique ends of the plaiting leave an unplaited triangular space with the apex at the strip junction. Within the space the free dextrals from the left edge of the

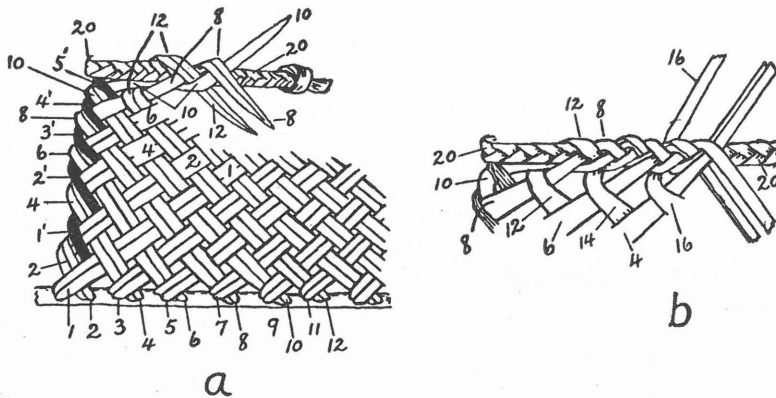


FIGURE 16. *Raurau* basket, second side and braid finish. *a*, shaded wefts (1'-5') represent completed side edge of first side; natural direction of unplaited leaflets toward left thus forms natural sinistrals; plaiting commences on left with first leaflet (1) crossed over second (2) to act as dextral; subsequent plaiting follows this order, so that of each subsequent pair of leaflets the one on left turned over next on right to form dextrals; after being crossed by first dextral (1), first sinistral (2) reaches left side edge; first sinistral given half turn to bring it back into plaiting but passed under nearest weft (1') of completed first side after the turn; next sinistral (4) reaches side edge, is turned and passed under nearest weft (2') of completed side; similarly, sinistrals (6, 8, 10) necessarily turned and passed under appropriate wefts (3', 4', 5') of completed side; depth of sheet now reached and working edge carried at this depth to right; when right edge is reached dextrals are successively turned in and passed under appropriate wefts of completed side in manner similar to left edge described; both ends of basket thus closed. Braid finish commenced on left by bending in free tail braid (20) of first side to tie along top edge of completed plaiting of second side; first three wefts (10, 8, 12) on left used to commence the three plies of second braid; weft (10) brought along lower edge of tail (20); sinistral weft (12) passes under tail to its far side; dextral (8) passes over weft (10) from near side; far weft (12) brought over tail and crossed over weft (8) to middle position; the three plies thus established. *b*, wefts dealt with in successive pairs consisting of sinistral and dextral; sinistral passes under tail (20) and new braid passes to far side, from which it enters braid with far ply while dextral directly enters near ply; sinistrals (12, 14) have entered alternate outer plies while next sinistral (16) is about to join third outer ply in middle position; dextral (6) has entered ply from that formed by first dextral (8) while next dextral (4) has entered alternate inner ply from 6; irregularity due to establishing commencement; wefts may enter successive or alternate plies to suit plaiter; tail (20) which lies at back of new braid is bound to it by turns of sinistral wefts which pass around it; when braid reaches end of tail it continues in same way, sinistrals passed under and around it to enter with outer plies; when right edge of basket is reached, plies plaited on in free braid tail which is knotted at end; free tail then interlaced through opposite side between wefts below its braided rim.

space and the free sinistrals from the right edge cross each other. The plaiting is continued from the left edge, and the space is filled in from the apex upward. The basket is now a completed cuff of plaiting with the lower edge defined by the midrib strip rim and the upper edge formed by the free ends of the crossing wefts at the edge of the plaiting.

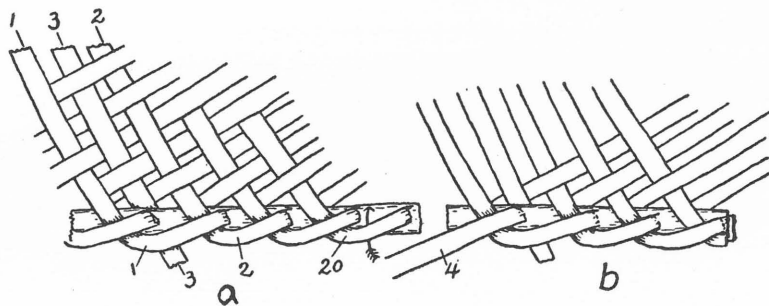


FIGURE 17. Twilled baskets, extra wefts and end join: *a*, right end of plaiting; *b*, left end. Space between sinistral wefts (1, 2) too wide so single closed leaflet (3) inserted as extra weft with butt end between the two midrib strips, plaited in usual way; sinistrals have all been twisted forward to left under weft in front; weft (20) on right being first to commence, twisting has no weft through loop formed between it and next weft; left end of plaiting (*b*) brought around in apposition to right end (*a*); free weft (4), passed through under loop formed by end weft (20) in *a* as indicated by arrow; two ends (*a*, *b*) drawn together; weft (4) passes through loop of weft (20), fixes join. Similar technique adopted with ends of dextral strip.

The projecting free ends of the wefts are dealt with by a three-ply braid technique so as to close the two sides together, and they form the bottom of the basket. To avoid confusion with a multiplicity of projecting wefts, the dextral wefts are put out of the way while the last working section is being plaited. In each movement of the last section, after the working sinistral is laid in the shed, the top dextral, instead of being discarded, is turned downward on the working sinistral and included under the top crossing dextral to keep it in the downward position out of the way. As a result, when the last working section is completed and has brought the basket to its full depth, only the sinistral set of wefts projects upward from the completed top plaited edge.

The plaited cuff is compressed to bring the sides together, and the line formed by the plaited edge on either side is placed longitudinally to the plaiter. Plaiting commences at the far end, and it is the object to close the patent line by crossing leaflets alternately from either side to form the plies of a three-ply braid.

To appreciate the Tongarevan methods, it is necessary to have in mind the Polynesian methods of closing the patent line at the bottom of baskets.

Two Polynesian braid finishes of basket (satchel) bottoms are known to me, the single-course and two-course braid finishes. The single-course braid finish is used in rough baskets made with open leaflet wefts. With the bottom in position and the sides pressed together, the farthest sinistral and dextral of one side are crossed over the middle line as one ply. The farthest dextral and sinistral pair on the opposite side is crossed over the first ply as the second ply. The next pair of dextral and sinistral wefts on the first side is crossed over the second ply, as the third ply. As the back ply is alternately crossed over to the middle position, a pair of wefts from the same side as the ply is pulled taut and added to the ply, occupying the middle position. When the near end of the basket bottom is reached the bottom is not only closed, but all the free leaflet wefts from either side have been incorporated in the braid. Nothing now remains but to continue the plies in a braided free tail and to fix the ends with an overhand knot. The braid tail is pushed through the plaiting below to place the knotted end inside the basket. The leaflets are taken up in pairs, regardless of their direction, and pulled toward the worker, so that all of the leaflets are disposed of in one course. The method is quick, but the braid is thick and rough in appearance.

The two-course braid finish (fig. 18) is neater and more secure, and is used for the better baskets. One set of wefts from either side is selected and braided singly for one course. In braiding the first course the set selected from either side is that which inclines toward the worker. The basket is then reversed and the remaining weft sets on either side, which now incline toward the worker, are also plaited singly to form a second course of braid. With the dextral wefts turned down and the basket bottom in position, the projecting sinistrals on the right are directed toward the worker, and those on the left are directed away from the worker. For the first course, therefore, the projecting free wefts on the right are utilized, but those on the left cannot be. Nothing remains but to pull up the dextral wefts on the left as required. When freed, the dextral wefts will be found to be directed toward the plaiter. Plaiting commences at the far end by pulling the farthest free weft on the right across the middle line to form the first ply. The farthest turned down dextral on the left is freed and pulled across the first ply to form the second ply. The next free weft on the right is crossed over the second ply to form the third ply. The braiding proceeds. After the back ply is pulled into the middle position the next weft on that side is added to it, and the crossing proceeds alternately from side to side until the course is completed. As indicated, the dextral wefts on the left are freed successively as they are required. The free sinistrals on the left side are left projecting, care being exercised after the dextral is

freed to see that it bears the plaiting relationship to the free sinistral that the plaiting technique demands. On reversing the basket after the completion of the first course, the remaining free projecting sinister wefts, now on the right side, are inclined toward the worker. The remaining set of turned down dextrals is on the left, and when freed, it is also directed toward the worker. Those wefts are braided singly from alternate sides to form the second course, which thus uses up all the wefts and securely closes the bottom of the basket. Variations in the manner of dealing with the two courses resulted in three forms of braid finish: the continuous, or single tail; the concealed two-tail; and the distinct two-tail.

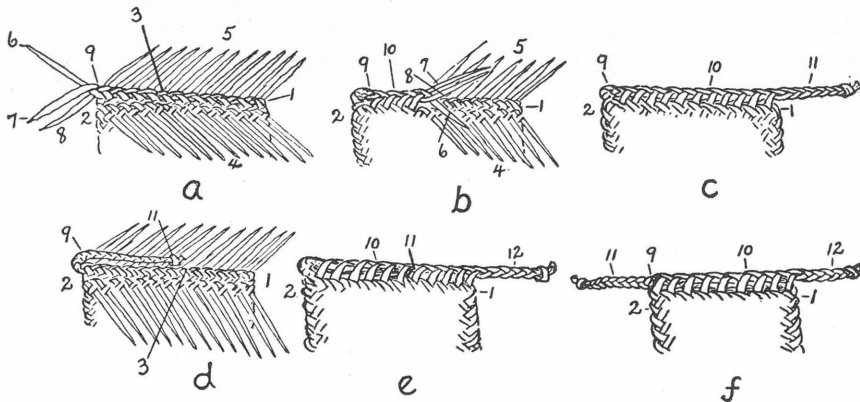


FIGURE 18. Twilled baskets, two-course braid finish of bottom, side views: *a, b, c*, single tail; *d, e*, concealed two-tail; *f*, distinct two-tail. 1, far point of first course; 2, near point to plaiter. *a*, first course (3) has been completed; three plies (6, 7, 8) continued for few turns (9); remaining set of dextral wefts (4) turned down on right side and remaining set of sinistrals (5) projects upward and inclines away on left side of bottom. *b*, basket reversed by imagining worker at point 1; remaining sinistrals (5) on right directed toward worker, and turned down dextrals, now on left, also directed toward worker when freed; braid end (9) has been doubled over on first course (3); second course (10) formed by adding wefts from either side to plies (6, 7, 8) continued on from first course. *c*, on completion of second course (10), wefts continued on as single free tail (11) and knotted; two courses thus continuous without break except for turn over (9). *d*, from position in *a*, the three plies continued on to form free tail (11) which is knotted and doubled over (9) to lie on first course (3). *e*, remaining two sets of wefts plaited from far point (2) over top of doubled-over first tail (11) and on reaching near end (1) continued on as free tail (12) and knotted; thus each course terminated by braid tail, but one concealed under second course (10). *f*, first course finished off with braid tail (11), but left free instead of being doubled over as in *d*; second course (10) commenced at 2 and on reaching end continued on as free tail (12); thus the two tails distinct; all free tails pushed through into interior of basket.

In the three forms of two-course braid finish the full length of the free ends of the wefts is incorporated in the plies. In a finish not used in Tongareva the wefts, after two or more turns in the braid, are successively

dropped so as to reduce the thickness of the braid. The ends are afterward cut off close to the braid.

The *taunga* basket is made from two strips from each side of a 20-inch section of leaf, so that when the strips are bent around to join the ends the basket is 10 inches long at the rim. The plaiting stroke is a twilled-two arranged in horizontal rows. The two-course braid finish is used at the bottom with the concealed two-tail technique (fig. 17, *d, e*; pl. 4, *B*).

The *kete* basket is larger than the *taunga*, but the technique is the same. The *taunga* is used as a container for pieces (*ika tungatunga*) of cooked fish. The fish is dried and kept for the days when fresh fish is not procurable, and is the correct diet complement to the hard *takataka* coconut. The larger *kete* is used as a container for freshly cooked whole fish. Any parts left over become *ika tungatunga* and are transferred to the *taunga* basket.

The *tupono* basket is larger than the *kete* and, on account of the length of the midrib rim and the shorter bottom, it is crescentic. (See pl. 3, *C*.) Variety in appearance is introduced by changing the direction of the horizontal twilled rows into vertical twills. On reaching the full depth, it is customary to change from the twill stroke into a row of checks to simplify the application of the two-course braid bottom. The two-course braid bottom follows the distinct two-tail technique (fig. 18, *f*). Except for the size, change of twill, and the variation in the braid bottom, the technique of the *tupono* is the same as that of the *taunga* and *kete* baskets.

The *tupono* is used for freshly caught fish, and small fish may also be driven or scooped up into it as if the *tupono* were a scoop net. The close plait of the baskets made with two leaflet-bearing strips renders the *tupono* effective as a fish scoop, whereas the wider interweft spaces of an open leaflet basket, such as the *raurau*, would allow small fish to escape. Similarly, the close plaiting of the *taunga* prevents small pieces of cooked fish from falling through. The coarser *raurau* is reserved for larger articles of food, such as coconuts. Technique and function affect each other reciprocally.

CORDAGE

Because of the absence of the hau (*Hibiscus tiliaceus*) and the *oronga*, the bast of which is used extensively in the Cook Islands and Tahiti as material for lines and cordage, the Tongarevans use the fibrous husk of the coconut and the skin of the coconut leaf midrib. Long strips of the skin from the upper surface of the coconut leaf midrib (*tari*) at the butt end are torn off for ordinary tying and for stringing fish. The strip is beaten and twisted to render it soft and pliable. Thus prepared, it is used in thatching houses (*ato i te hare*) and also for climbing bandages. The fibers

of the coconut husk (*puru*) are soaked and beaten to remove the interfibrous material. Sennit two-ply twisted cord (*hau ato*) is then made by rolling the two-ply on the thigh, with fresh strands added. It is used for fishing lines, nets, and in processes such as the thatching of the better forms of houses. Sennit three-ply braid (*kaha*) is also made from the treated husk fibers of the nut. The braid is used for lashing the planks of canoes together and for lashing adzes.

COMPARISONS

The coconut roof sheet is so widely distributed in Polynesia that it needs no comment.

The *pataro* single wall screen, with the full leaf commencement (fig. 13), is peculiar. The full leaf commencement is found in Manihiki but not in the Cook Islands. An almost identical article is made in Tahiti, where Handy (10, p. 66, pl. 10, c) describes it as a *paua tarii* used as a sitting mat. It is not found in Samoa.

The double wall screen (pl. 2) is similar to the *hapuka* wall screen of Aitutaki (28, p. 32) and the Cook Islands. It also resembles the Samoan carrying sheet (29, pl. 12, e). The technique, however, differs slightly in that the two-course braid, connecting the two half sheets, is dealt with by the distinct two-tail finish (fig. 18, f), whereas in the Cook Islands and Samoa the finish consists of the continuous single tail technique (fig. 18, c).

The sitting mat (*tapakau*), made in twill with a two-strip commencement (fig. 14), is not found in the Cook Islands or in Tahiti. The technique, however, is used in Manihiki for wall screens, doors, and sitting mats and carries the Tongareva wall screen name of *pataro*.

Plaited oven covers (pl. 2) are not found in Tahiti and the Cook Islands, but they are found in New Zealand. Plaited covers were probably adopted because of the absence of suitable large-leaved plants, which provided the oven covers in other Polynesian areas.

The technique used in making the sleeping mat (*pakere rei*) with the mesial three-ply braid joining the two halves of the mat is not found in the Cook Islands and Tahiti. It is present in Manihiki and New Zealand. In New Zealand most wefts of flax are long enough to make the ordinary mats by adding them only on one side of the commencement braid (27, p. 716), but if the wefts are short the mesial braid with wefts added alternately on either side is used, as in the mats of Tongareva and Manihiki.

In Manihiki the sleeping mat is termed *tapakau*, and in Samoa the coconut leaf with a mesial midrib join (29, pl. 16, c) is also *tapa'au*. In New Zealand the finer sleeping mats are *takapau*, a word in which two consonants have become transposed. It is evident, therefore, that the Tongarevans

wrongly applied the term *takapau* to the small sitting mat and were forced to invent the name, *pakere rei*, for the sleeping mat. The presence of the mesial braid commencement shows an advance in technique and skill in dealing with the meager material available.

The *raurau* basket (pl. 4) with the unsplit midrib at the bottom is not found in the Cook Islands, but it is described by Handy (10, pl. 3, *A*) for Tahiti. The Tahitian basket differs in technique in that both sides are plaited in continuity, and the turned-in edges of the first side with the subsequent interlacing of the second side noted in Tongareva are absent. This type of basket was not made in Samoa or in the Cook Islands.

The twilled baskets are found in the Cook Islands, Tahiti, and Samoa. The smaller *taunga* baskets resemble the *si'u ola* baskets of Samoa (29, pl. 14, *c*) but have the concealed two-tail finish of the two-course braid at the bottom, whereas the Samoan basket has the distinct two-tail finish. The Tongarevan *tupono* is similar to the Samoan *ola tu* (29, pl. 14, *B*) except that it is not so deep. Both are used to catch fish. Both the Tongarevan and Samoan baskets represent a coarse stage of twilled plaiting, whereas those of the Cook Islands (28, fig. 163) and Tahiti (10, pl. 6, *A*) show an improvement in technique in which the wefts of the two-course braid bottom are dropped out and cut off to make a neater braid.

The open leaflet baskets with the full leaflet split, after the completion of the basket to form the rim, are common in Tahiti as the *haakee pahai* (10, pl. 3, *B*) and in the Cook Islands as the *tapora* (28, fig. 154). These baskets are absent in Tongareva and Samoa.

The lauhala (*rauvara*; *Pandanus* leaf) mats are simple and show little of the advanced decorative work of the Cook Islands, in which the twilled borders with overlaid plaiting in color have reached a high development. Decoration is confined to running a couple of weft lines of the thin anterior surface of hala leaf, dyed red, in overlaid plaiting to form a double row of red checks at wide intervals over the body of the mat. Two strips of lauhala to form double wefts are used. Plaiting is confined to mats for domestic use and did not develop into a widely used craft as in Manihiki and Rakahanga, where plaited mats, satchels, fans, and hats are beautifully made for local use and for presents. The Tongarevans, in recent times, have used *pipi* pearls as gifts and have not the extra need for plaited articles which stimulated the craft of plaiting in Manihiki and Rakahanga.

CLOTHING AND ADORNMENT

Although European garments are in general use, the native clothing is described. In the climate of Tongareva the use of clothing as a protection against the weather is not necessary. The people meet the excessive heat of

the noonday sun by seeking the shade of their houses. The main use for clothing is for concealment, or as the people themselves phrase it, *e pui'pui i tona aro* (to conceal his or her anterior). The dictates of modesty were formerly met by the men in the wearing of perineal bands (*maro*). The women wore kilts (*titi*), waist garments which do not fall below the knees. In addition to these two essential articles which differentiate the sexes, capes, eye shades, and head dresses were worn on occasion.

The poverty of food plants in Tongareva is accompanied by a poverty in textile plants. The ti plant (*Cordyline terminalis*), which furnishes the working kilts on many islands, the hau (*Hibiscus tiliaceus*), which furnishes dance kilts, and paper mulberry, *aute* (*Broussonetia papyrifera*), which provides bark cloth, are absent from the flora of Tongareva. The coconut palm is a clothing plant as well as the food plant. Its leaflets take the place of the ti and the material at the base of the leaves takes the place of paper mulberry (*aute*). The hala supplies the men's garments with waist cords.

The perineal band (*maro*) consists of a long strip of coconut textile (*kaka*) about a handsbreadth in width and a dry *Pandanus* leaf (*lauhala*; *rau hara*) trimmed of its spines and scraped on both surfaces with a shell to soften it and render it more pliable. The lauhala is cut long enough to form the waist band. One end of the leaf is knotted to the end of the coconut textile. The free end of the textile is held against the abdomen, and the attached end is passed between the legs so that the strip covers the genitals and perineum. The lauhala is drawn taut and brought around to the front above the right hip, passed around the waist over the part of the textile held up in front, carried to the back, looped around its commencement, and knotted to the textile in the middle line. The free end of the textile strip is dropped over the waistband and hangs down in front in the same manner as the bark cloth *maro* used on other islands.

Lamont (15, p. 111) states: "The men only wear a small 'marow' fastened around the loins, and the children are completely naked." Wilkes (31, vol. 4, p. 279) also states that the men wore no clothing except a small *maro*. Lamont does not mention the material of which the "marow" was made, but Smith (23, p. 98), in using Lamont's description, inferred that it was coconut leaves, and Kotzebue (14, p. 218) stated that the men wore bunches of coconut leaves tied to a cord. As demonstrated to me at Omoka, the correct material for a *maro* is *kaka*. (See pl. 4, D.)

The kilt (*titi*) worn by the women is made of coconut leaflets (*kata nikau*) which are split (*toetoe*) into narrow widths with the thumb nail. The leaflet midribs are discarded (*ka hakiri te haniu*). The strips are then beaten (*tuki*) to soften them (*kia hunga*). Kotzebue (14, p. 218) is in

error when he states that the women's girdles were made with strips of bast hanging loosely.

In some kilts the ends of the leaflet strip are braided (*hiri*) to form waistbands from which the strips hang down, as in the *titi* kilts made of ti leaves which are used in many Polynesian islands. In other kilts the leaflet strips are plaited (*raranga*) in check for a short depth down from the waist band.

Lamont (15, p. 110), who saw the Tongarevans when nothing but native clothing was worn, states:

The dress of the . . . [women] consisted merely of a kind of short kilt, called a "titche," formed of a quantity of coconut leaves, slit into fine strips like grass, and fastened to a cord at the top, which secured it round the loins. The mass of hay, as it might well be considered, drops down to near the knee, where it is cut square off and sloped up a little on the one side, coquettishly showing the proportion of the leg more than would be considered strictly decorous in discreet society.

In Lamont's spelling of "titche" is seen his recognition of the sibilant sound of *titi*. Smith (23, p. 98) confounded Lamont's spelling of "titche" with the Maori word, "tihei," with which *titi* has no affinity.

Though not mentioned by any informants, a kilt of bast was made for wear by chiefs on festive occasions. In describing a dance at Hakasusa Lamont (15, p. 316) says: "The chiefs had also long belts, plaited at the waist, hanging down in a fringe to the knee. This part of their dress was made from bark of a light color, and on their swarthy bodies looked well."

The "belts" mentioned were evidently *titi* kilts of the plaited waistband type. The "bark of a light color" was probably the bast of the *tou* which was used for ornamental fringes in Manihiki. That it was worn by chiefs at a dance indicates that the garment was rare and did not figure as ordinary clothing.

The cape or mantle (*parua*) was made of coconut leaflets split into narrow strips, plaited with a fine plait, and worn over the shoulders. The garment was well known traditionally by its correct name of *parua*, but a sample could not be reconstructed. Lamont (15, p. 110) refers to it as follows:

They sometimes, also, wear what is called a "pariew," a short mantle of matting made from the coconut leaf, split as fine as straw and plaited in such a way that it narrows up towards the neck, round which it is fastened, fitting on the shoulders and falling below the waist.

Smith (23, p. 98) converted Lamont's spelling of "pariew" in "pareu" from his knowledge of the use of *pareu* in the Cook Islands. In the Cook Islands, however, *pareu* denotes a kilt and has no affinity with the Tongarevan cape. In referring to clothing Kotzebue (14, p. 218) states:

Only a few of them had a scanty covering for the shoulder. This consists of a coarse mat in two pieces, made of cocoa-leaf. A part of the middle rib, on which the little leaves grow, forms the under edge of this basket-like mantle. Sometimes bleached pandanus leaves are braided between for ornament.

Kotzebue's description seems to indicate that the mantle was made with the two-strip commencement technique which formed the lower edge of the garment like the rim of a basket. His "basket-like mantle" suggests a garment plaited as an open cylinder or cuff like a basket and in which the upper narrowed circumference would probably be finished off with circumferential three-ply braid, thus forming a kind of poncho. Kotzebue refers to it as a coarse mat, but Lamont states clearly that the leaflets were split as fine as straw. They may have been describing different types of mantle.

My informants stated that a larger cape, termed *kausoa*, was made, but they were unable to give details except that it was made of coconut leaflets after the manner of the *parua* cape. Lamont (15, p. 155) states: "I should have mentioned at the same time that the *parieu* is sometimes made large and double, serving them as a dress by day, or as a covering by night, when it is opened out. This is called a 'cau sho,' but is not in general use."

Lamont's statement that the double cape was "opened out" to serve "as a covering by night" indicates that the garment described could not have been plaited with a basket closed-in technique to form a poncho.

As in the names of three other garments, Smith (23, p. 98) incorrectly transposed Lamont's "cau sho" into the Maori "kahu" because he saw resemblances to words in other dialects. The liability to error without checking up with field work is shown by a comparison of the spellings.

Garment	Lamont	Smith	Correct form
Perineal band	marow	maro	maro
Kilt	titché	tihei	titi
Cape	pariew	pareu	parua
Double Cape	cau sho	kahu	kausoa

Two types of head dress (*pare*) were enumerated, the *pare taumata* and the *pare maka*. The *pare taumata*, or simply *taumata*, was the eye shade made of coconut leaflets shown in figure 19.

The use of the double commencement strip, the situation of the midrib strip on the front edge of the peak, and the braiding of two free tails to form the supporting band around the head are characteristic of the Tongarevan eye shade. It is a much neater technique than the Samoan, with a single midrib strip used to commence the side of the shade, and a prolonged length of the strip for the head band (29, fig. 124).

The *pare maka* is known only from song. Kotzebue (14, p. 218) states that a few people had head dresses of black feathers. Lamont (15, p. 316) refers to the wearing of sennit braid tied around the head at a festival.

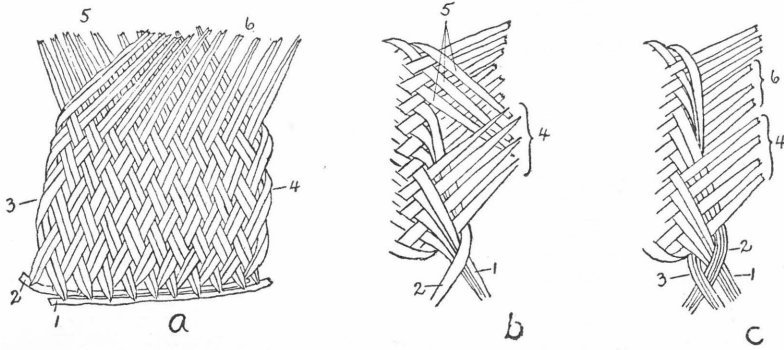


FIGURE 19. Eye shade (*pare taumata*): *a*, midrib strip about 9.5 inches long and bearing about 10 leaflets is taken from opposite sides of coconut leaf; sinistral-bearing strip (1) placed above other (2) and, with midrib strips toward worker and shiny surface of leaflets up, the two sets of crossing elements are plaited in check with leaflets opened out; side edges (3, 4) defined by half turns of leaflets as these successively reach margins; check plaiting continues for depth of about 8.5 inches, when sinistral weft ends (5) incline toward left and dextral weft ends (6) toward right. *b*, plaiting turned sideways so that free plaiting edge lies longitudinal to worker and to right; dextral wefts inclined toward worker and plaited into three-ply braid; first ply (1) formed of the four nearest wefts, which are grouped together; second ply (2) formed of the next three wefts which are brought behind nearest four sinistral wefts (4) and crossed from right over first ply; three remaining wefts (5) form third ply. *c*, last three wefts brought in front of sinistral wefts (6) and behind first four sinistral wefts (4) to form third ply (3), which enters braid from left by crossing over second ply (2) to middle position; the three plies plaited as free braid tail for about 13 inches, fixed with overhand knot, and leaflet ends cut off. Plaiting edge reversed so that remaining set of leaflets are directed toward worker; the three plies are formed in same way as the other, and free braid tail plaited and knotted; ends of two free tails brought together and tied in reef knot, and loop adjusted to size of head. (See pl. 4.)

The types of clothing described do not lend themselves to any marked specialization in technique for distinctions of rank. All men use the *maro*. The memory of the *maro* for chiefs is evident in the term "tangata maro kura" applied to chiefs, but the *maro kura* (red girdle) does not exist in any material form. The women expend some care on their coconut leaf kilts and are adverse to getting them wet, for aesthetic reasons. The kilts are cut off square and slope up a little on one side to display a certain amount of leg. Thus, fashion rules as well as utility. Also, a woman takes pride in making a new kilt when she is about to make a visit to another community. Lamont (15, p. 314), in describing the crossing between Motukohiti and Hangarei, mentions his wife's new kilt:

I hastened to the rescue, and carried the provisions safe to land; but the beautiful "tiche," in which she was to present herself before my friends of Sararak, no longer descended in a graceful fall, but hung around her like a dripping "raurau" [sweep net of split coconut leaves]. We had to call a halt whilst she retired to a remote part of the island to dry this elegant garment in the sun; meanwhile I entertained myself by "prospecting" among the provision baskets.

The *parua* cape is worn by both women and men. Lamont (15, p. 132) says that women always removed it when dancing the "shukai" (*haka*). The use of ornamentation is seen in Kotzebue's statement (14, p. 218) that bleached lauhala was sometimes braided between the coconut leaflets "for ornament." Wilkes (31, vol. 4, p. 279) mentions a mantle:

Few evidences of rank were observed among them and but one was seen who had the appearance of being a chief. This was an old man, who was seated in the centre of a canoe, paddled by fifteen natives, who were striving hard to overtake the brig. He wore a sort of mantle of plaited leaves over his shoulders, with a fillet of leaves on his head, and his whole bearing and conduct betokened authority.

The further statement of Wilkes that only two or three men wore short mantles may indicate that the *parua* cape was worn more by chiefs.

Particular types of head dress usually serve to distinguish social status. The coconut leaflet eye shade (*pare taumata*) was worn by all. The head dresses of black feathers seen by Kotzebue (14, p. 218) would undoubtedly serve to distinguish a particular status among the people. Tupou Isaia knew nothing about them but stated that a *pare maka* head dress was mentioned in a song:

Titia mai to titi maire,
Seia mai to sei rauru
Parea mai to pare maka.

Gird on your fragrant kilt,
Tie on your necklet of human hair,
Put on your *maka* head dress.

The use of the term "kilt" implies that the song was addressed to a woman, but Lamont's description of a festival dance shows that kilts with plaited waistbands and made of bast were definitely used by chiefs on such occasions. (See page 78.) The special material and technique makes it probable that it received a special name, and it may be the "titi maire" alluded to above, for, although the *maire* is a fragrant plant in the Cook Islands, it does not grow in Tongareva. The word is thus likely to have been transferred to some other kilt used in festivals. The chiefs wearing the kilts also wore many folds of broad "sinnet" bound round their heads. Anything worn around the head comes under the term "pare," and the sennit folds around the head may quite possibly be the "pare maka" referred to in the song. The "sei rauru" necklet of human hair was worn by both sexes. The song thus sums up the main items of adornment possible to chiefs on

festive occasions: a special form of kilt, the hair necklet, and headdress possibly consisting of turns of broad sennit.

The conclusion is reached that the lack of plants providing a suitable bast or textile fiber has prohibited the development of special garments to mark differences in social status.

The men and women wear their hair long. When battles are impending the women cut their hair short to offer less hold to the opposing members of their own sex.

Coconut oil is used to rub over the body. This is prepared by placing pieces of mature *sakari* nut on the fire until it becomes burned. The burned nut is then chewed and the oil extracted is spit out on the hands and rubbed over the body. The oil is prepared immediately before use and is not made in quantity for storing in coconut shells.

A necklet of braided human hair (*sei*) is worn around the neck by both sexes. Lamont (15, p. 137) describes a *sei* received as a present from a woman of Omoka as "a thick bunch of finely plaited human hair, such as we see guard chains made of at home." Kotzebue (14, p. 217) states that he noticed "several old men who had suffered their thumb-nails to grow, a speaking testimony of their privileged idleness. In one, the nail which was bent inwards, had reached the length of between two and three inches." Wilkes (31, vol. 4, p. 279) says: "For ornaments they had strands of human hair braided and decorated with finger nails half an inch long, and two to each strand." The long thumb-nails that Kotzebue saw were thus not signs of the privilege of idleness but were left to grow to form ornaments for the *sei* necklets. When the lack of ornamental material is considered, the use of finger nails seems reasonable.

Tattooing was not practised in ancient times. After Tongarevans had gone away as sailors on European ships they commenced to tattoo, but the designs were foreign. Kotzebue (14, p. 217) states that the men were not tattooed, but had furrows and stripes lacerated in the skin of the body and arms, which in one of them seemed to be quite fresh and bleeding. Wilkes (31, vol. 4, p. 279) also remarks that scars on the body and limbs appeared general. No information about such a custom was offered me, and the doubt arises as to whether the scars were not due to war wounds and the cuts made in the *pehu* ceremony and as signs of mourning.

Both Kotzebue (14, p. 217) and Wilkes (31, vol. 4, p. 278) state that many men had lost their front teeth.

STONWORK

MATERIALS

Stonework in Tongareva has been restricted by the lack of basalt, which precluded the manufacture of adzes and other stone implements. The field of endeavor has been confined to the use of coral and coral limestone. Coral receives the general name of *punga*, a name also specially applied to the softer young coral which, after being used for cooking stones, crumbles to small, whiter pieces termed *tia*. The harder, older coral which forms flat slabs is termed *karaea*. The *karaea* slabs were used for house foundations, for the boundaries of the religious inclosures, and for pathways over sharp coral.

Coral limestone (*pae*) is found plentiful on both the sea side and the lagoon side of the islands in stratified layers which cleave naturally at thicknesses of 4 to 10 inches. Limestone slabs were used for the large upright pillars around the maraes and also in some of the larger house foundations. It is curious that Lamont should have failed to recognize that the material existed abundantly in a natural state. Theorizing on the coral limestone on house sites, he stated (15, p. 159):

These remains, like the huge stones of the maraes, that are evidently made of composition, though the natives believe them to have come out of the sea, led me to believe that another race must have at one time inhabited this little portion of the globe—perhaps swept away by some catastrophe spreading destruction over their island, to be replaced by the descendants of others, thrown upon the shores in some chance canoe.

The natives' statement that the material came out of the sea could easily have been verified by Lamont. As it is, his erroneous speculation that the material was a composition manufactured by some extinct race has been accepted by subsequent writers, and the Tongarevans have been regarded as incapable of accomplishing the stonework they actually made. I have seen similar material used for maraes in Rakahanga, the Cook Islands, and Raiatea. K. P. Emory, in conversation, reports it in the Tuamotu Islands.

Tongarevan coral stonework consists of paths, wharves, fish ponds, house foundations, religious structures, and graves.

PATHS, WHARVES, AND FISH PONDS

Where a path was needed over sharp-pointed gravel, slabs of *karaea* were laid flat at intervals to form stepping stones. Paths are most noticeable on the small islet of Te Kasi. Lamont, in attempting to leave Motu-unga

without the consent of his hosts, reached the islet of Te Kasi and found his way blocked by the Northwest Passage. It was then that he noticed a number of paths which he described (15, p. 188) as follows:

Angry and grieved, I sat on the mound, which, the excitement over, I dreaded the pain of walking on. Looking over it, I observed for the first time that it was hollowed out like a cone, and intersected with paths of large flat stones, some lines of which crossed over the summit and descended to the water's edge. The place had, at one time, been used for some peculiar ceremonies, but of what nature I could never afterwards learn.

Smith (23, p. 92) quotes Lamont: "In another place he says, 'I observed that the mound was hollowed out like a cave.'" Thus, through what is probably a printer's error, Lamont's "cone" has become a "cave," and it adds an air of further mystery to the little islet. The islet of Te Kasi has been built up largely of broken, sharp-pointed, branched coral. A strong tidal current sweeps through the Northwest Passage, and there is a back eddy between Te Kasi and the neighboring islet of Te Hara. The islet is circular, and the varying currents and tides have piled up broken coral against its periphery so that it is "hollowed out like a cone," the sides having been built up by natural deposits of coral. Good fishing is to be had on all sides, and the foundation sites of small shelters, some of them mere patches of smooth gravel, are abundant proof, even without the assurances of the men who accompanied me, that the islet had been a favorite camping ground for fishermen. The broken, branched coral which everywhere covers the ground is the sharpest I had seen, too much so for the comfort of even the tough-footed Tongarevans. Flat slabs of *karaea* had therefore been laid down by the fishermen to form the paths which radiate from the hollow and cross the raised periphery to descend to the water's edge. The paths were used by the fishermen, and Lamont could never afterward learn of ceremonies because there had been none.

Each island division has a landing place opposite some channel in the inner reef where canoes can be paddled or poled over the shallow part of the lagoon to the shore. Where the water, deep enough to float the canoes, comes up to the land, the land edge has been faced with coral boulders and slabs to form a wharf and thus to prevent the land edge from crumbling away. Such an old-time wharf was noticed on the island of Kavea opposite the marae of Mahora-kura. The edge is faced with a single row of upright slabs about 2 feet high.

Where the water is too shallow for the canoes to reach the land, piers built of coral boulders have been run out into water deep enough to allow disembarkation. Lamont (15, p. 172) speaks of one of these piers:

The kingdom of Omuka is particularly fortunate in its little harbor. The wide reef we had been coasting along narrows towards its north end till it abruptly turns into the land, which, on the other hand, bends out into the lagoon, forming a quiet little cove. A pier of coral boulders has been built out some distance into deep water, so that at all times of the tide canoes, or even vessels, may come alongside.

The pier mentioned by Lamont was at the present village of Omoka, where an up-to-date wharf to serve trading schooners has taken the place of the former simple pier.

The building of wharves has been continued by the descendants of the stone age Tongarevans, but in order to give better accommodations to the larger sailing boats, bigger stones are now needed. Unfortunately, the new culture, and especially the religious side of it, has inculcated in the minds of the natives a lack of appreciation of ancient institutions. New boat wharves have been built at Tokerau, Rukutia, and other islands from the limestone pillars of maraes. It has been truly said that the altar cloth of one aeon forms the door mat of the next.

Fish ponds for the growth of young mullet were formed from some of the large, somewhat brackish freshwater pools that exist on a few of the islands. In addition, parts of the shallow lagoon are inclosed by loose walls and coral boulders, with the shore forming part of the boundary. Such inclosures were seen at Te Puka and other islands. Fish ponds, such as Moe-ahiahi between the islets of Te Puka-nui and Tahakoka-a-vai, were named. Mr. Philip Woonton still uses one of the fish ponds.

HOUSE FOUNDATIONS

The raised stone platform of the *paepae* type, represented by a few structures in the Cook Islands and common in the Marquesas, is not found in Tongareva. The houses were built on the flat ground, but small flat slabs of the coral (*karaca*) were set on edge and embedded in the ground between the wall posts or immediately outside them. They project above the ground about 6 inches and form the low rectangular wall that bounds the house floor. The floor is covered with white coral gravel (*kirikiri*), which the wall prevents from being scattered to the outside. These low rectangular walls and the fine coral gravel within are to be seen on many of the islands and clearly indicate that the population was widely distributed.

The wall lines of some of the large houses were formed of small slabs of the limestone material used to form the uprights of the maraes. These, being higher, were correspondingly filled in higher with gravel and thus give the appearance of low platforms, as does the foundation of Turua's house in Motukohiti. Lamont (15, p. 159) speaks of stone foundations at the northern end of Mangarongaro:

Some distance beyond this were what appeared to be the foundation of stone walls, many of them intersecting our path. I afterwards saw similar erections in other parts of the island, but could never get a proper explanation of them, the natives merely saying that they had been houses, but apparently knowing nothing more of them than I did. These remains, like the huge stones of the maraes, that are evidently made of composition, though the natives believe them to have come out of the sea, led me to believe that another race must have at one time inhabited this little portion of the globe—perhaps swept away by some catastrophe spreading destruction over this island, to be replaced by the descendants of others, thrown upon its shores in some chance canoe. The legend of their origin told by the natives themselves, is that Mahauta, a great chief, and Ocura, his wife, came from the land beyond the sky, bringing cocoa-nut, hara, fish, birds, etc., but of the origin of these architectural remains they are utterly ignorant.

I saw the remains described by Lamont, and his informants were quite right in merely saying they had been houses. Further information was unnecessary concerning what was so obvious to them, but Lamont evidently thought that the lack of detail vouchsafed indicated that they knew as little about the subject as he himself did. As they were quite right also about the huge marae stones coming out of the sea, Lamont has constructed a theory of another race on two fundamental statements which are absolutely incorrect.

The coral gravel spread over the floor is very white, and even now the old house foundations are clearly indicated by the white gravel as well as by the lines of slabs. Lamont found that when extra attention was paid him a fresh layer of clean gravel was laid on the floor for him to sleep on. Among the wrecked crew of the *Chatham* the gravel on which they slept was jocosely referred to as "Penrhyn Island feathers" (15, p. 129).

MARAEs

DISTRIBUTION

The greatest activities in stonework were directed toward the construction of the stone inclosures which served both religious and social purposes. These structures are termed maraes (Lamont's spelling [15], "mara," is incorrect.)

The maraes are distributed over the islands. (See fig. 2.) Twenty-four were enumerated, including the abnormal Papa-o-Sokoau marae. A list of the sites, names, and condition of structures, arranged in order from Motuunga east, south, and west back to Omoka, is given in Table 9. The districts in which the maraes of the larger islands are located are given in parentheses.

Table 9. The Maraes of Tongareva

ISLAND	MARAE NAME	CONDITION
1. Motu-unga	Kirihuri	Destroyed
2. Tokerau (Rangiriri)	Tokerau	Fair
3. Niu-te-kainga	Niu-te-kainga	Not seen (good)
4. Ruahara (Punua)	Te Tohi	Good
5. Ruahara (Sivalau)	Sivalau	Not seen
6. Rukutia	Te Hara-taurekareka	Good
7. Vaselu	Arahura	Good
8. Tautua	Papaki-reia	Destroyed
9. Kavea	Mahora-kura	Partly destroyed
10. Naue (Haitaki)	Mahue	Good
11. Naue (Ivirau)	Rauhara	Good
12. Tepetepe	Hoenga-waka	Good
13. Te Puka	Te Puka-nui	Cemetery
14. Te Puka	Punaruku	Destroyed
15. Atutahi	Te Rupe-tangi-rekareka	Good
16. Vaiari	Nukurea	Good
17. Hakasusa	Tongariro	Good
18. Hakasusa (Hohonu)	Hakataungari	Cemetery
19. Mangarongaro	Rakahanga	Good
20. Mangarongaro	Te Vete	Fair
21. Hangarei	Hangarei	Good
22. Motukohiti	Te Reinga	Excellent
23. Motukohiti	Te Papa-o-Sokoau	Good
24. Omoka	Omoka	Destroyed

Two of the 24 maraes listed were not seen, but it is said that the one on Niu-te-kainga is in good condition. Of the four completely destroyed, those at Omoka and Tautau are near the present villages of those names. The sites are known, but all the material has been used in the churches and graves; even the small *karaea* slabs have been used to mark the edges of the streets which run through the villages. The other two destroyed maraes on Motu-unga and Te Puka are near the two villages established by the missionaries but since abandoned owing to the depletion of the population by the Peruvian slavers. Here again the stone pillars of the maraes have been used for churches and graves. The marae at Kavea was partly destroyed when many of the pillar-stones were removed nearer the sea to form a stone pulpit from which one of the early native missionaries preached open air services. The stone pulpit has the form of a trilithon, with one pillar slab supported on the top of two others sunk in the ground. This postmissionary structure is pointed out lest it form a trap for subsequent investigators. Two other maraes have been used as general cemeteries, and certain other places used as cemeteries may originally have been maraes. In spite of the removal of pillars, the boundaries of 17 maraes were accurately mapped and measured with a chain tape.

The islands are almost flat. On their seaward sides the waves have piled up broken coral and coral boulders into raised banks. Of the 22 sites

seen, 10 are located on the sea side of the islands, most of them on flat ground, as close as possible to the raised banks. These are sites which assure privacy. The marae of Hoenga-waka is on a small, semi-detached islet on the sea side of Tepetepe. The Arahura marae is on the very small island of Vaselu; it served as a second marae to the larger island division of Tautua. The large marae of Hangarei abuts upon the raised bank. On the other hand, 8 maraes are on the lagoon side, including the maraes of Tokerau and Motu-unga. The remaining 4 occupy a midway position between sea and lagoon. The levelness of the ground obviated any attempts at excavating or building up to obtain an even floor, except at Hangarei, where a slight slope led to the raising of one corner 12 inches above ground level.

GROUND PLAN

With the exceptions of the abnormal Papa-o-Sokoau and the Tongariro maraes, all the maraes have four almost straight sides meeting at angles approaching right angles. Four of the maraes have raised platforms at one end, where there are also higher upright pillars. In the maraes without platforms the end with higher uprights can always be distinguished.

In describing maraes the end with the highest uprights will be referred to as the back and the opposite end as the front; looking toward the back from the front, the sides are left and right; the distance between the two ends is the length, and that between the sides, the width.

Although it may be said that the maraes were built on a rectangular plan, the opposite ends of all structures were not designed to be equal. Of 15 four-sided maraes that could be measured accurately, 7 are practically rectangular. In only 2 of them does the difference between opposite ends and sides reach 4 feet in a length of 80 feet. In some the difference amounts to inches only. In the remaining maraes the difference between opposite ends or sides is as great as 12 feet.

Most of the maraes are longer than they are wide. In only 4 out of 15 was the width greater than the length, 1 of the 4 being the large marae of Hangarei. The Arahura (Vaselu) and Te Tohi (Ruahara) maraes are almost square. In some others the difference between length and width is marked.

There is a fairly constant difference in width between the back and front. Leaving out 3 with equal ends, of the remaining 13 maraes 4 are wider at the front and 9 are wider at the back. In the 4 maraes with wider fronts the differences are 1, 2, 4, and 6 feet. The slight differences in the first three may be due to the inaccuracy attending sight planning without a measuring cord and not to deliberate intention. The difference of 6 feet between the front and back of the Hakataungari marae of Hakasusa, now used as a cemetery, may mean that the original boundaries have been altered.

Of the 9 maraes with wider backs the well preserved maraes of Te Reinga, Hangarei, Mahue (Naue), and Rauhara (Naue) have differences of 9, 10, 10, and 21 feet respectively, which indicates that in some maraes the back was made wider deliberately.

It may therefore be stated that the ground plan of most Tongarevan maraes is roughly rectangular with the long axis extending between the front and back, thus conforming, though on a large scale, to the ground plan of the Tongarevan dwelling house. Associated with this is a widening of the back in relation to the front, which reaches its most marked departure from normal in the total increase of width over length.

Lamont (15, p. 111) has conveyed an erroneous impression of size in his description of the first marae that he saw.

Pushing on through the jungle of tall weeds, I suddenly came on an open space of some hundred yards square. It was encircled by tall, flat stones, some six feet in height, though generally much lower, but not more than a few inches in thickness; a sort of "Stonehenge" in a small way.

With no opportunity of verification, Smith (23, p. 91) naturally accepted Lamont's statement when writing on Tongareva, for he remarks: "The *maraes*, or sacred enclosures, some of which were as much as a hundred yards square. . ."

From the well known site of the wreck of the *Chatham* and Lamont's description of his movements it is absolutely certain that the marae that he described is the one named Rakahanga on Mangarongaro. K. P. Emory, who saw the marae in 1926, stated in conversation that he had come to the same conclusion. He gave the dimensions by pacing as 87 feet by 100 feet. My measurements (Table 10) with a chain tape are close to these figures.

Table 10. Dimensions of Maraes
(measured to the nearest foot)

MARAE	ISLAND	FRONT	BACK	LEFT SIDE	RIGHT SIDE
Tokerau	Tokerau	68	66	79	79
Te Tohi	Ruahara	78	82	83	83
Te Hara-taurekareka	Rukutia	87	83	79	80
Arahura	Vaselu	66	66	63	63
Mahue	Naue	85	95	91	97
Rauhara	Naue	79	100	112	104
Hoenga-waka	Tepetepe	84	91	95	105
Te Puka-nui	Te Puka	57	65	81	81
Te Rupe-tangi-rekareka	Atutahi	83	85	79	80
Nukurea	Vaiari	67	66	77	74
Hakataungari	Hakasusa	47	41	96	87
Rakahanga	Mangarongaro	84	89	101	101
Te Vete	Mangarongaro	87	87	102	102
Hangarei	Hangarei	122	132	105	93
Te Reinga	Motukohiti	52	61	67	67
Tongariro (diameters)	Hakasusa	103		109	

The largest marae is Hangarei; the smallest is the well-made and well-preserved marae of Te Reinga. The narrow Hakataungari marae has been converted into a cemetery, and its boundaries may have been altered. The greatest length is the left side of the Rauhara marae, 112 feet. None of the maraes of Tongareva are as much as 100 yards square in area. Lamont's description of "some hundred yards square" must therefore be regarded as referring to the open space in which stood the marae and the tombs that he mentions.

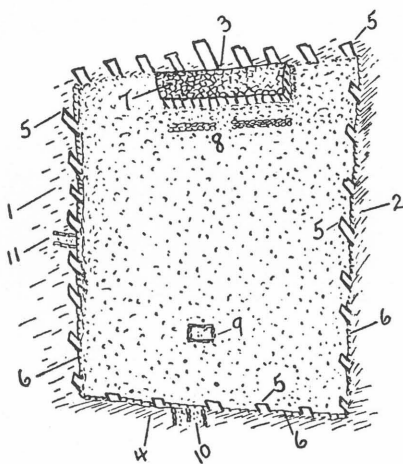


FIGURE 20. Diagram of model Tongarevan marae: 1, left side; 2, right side; 3, back; 4, front; 5, pillars; 6, curb; 7, raised platform; 8, pavement; 9, house site; 10, small entrance inclosure; 11, small side inclosure.

A rough diagram of the Tongarevan type of marae is shown in figure 20. The two sides are approximately equal in length; the back is wider than the front; the boundaries are defined by limestone uprights; the space between the uprights is filled with a single row of flat coral pieces set on edge. At the back of the inclosure is a rectangular raised platform which stands against the back boundary but does not extend as far as the sides. A few feet in front of the platform there are traces of a disconnected stone pavement. Toward the front of some maraes are the boundary stones of small house sites. At the outer side of the middle of the front boundary there may be some low stones (*karaea*) set on edge as if to indicate an approach into the marae. (See pls. 5-7.)

PILLARS

The upright pillars are cut from limestone strata, which have a natural horizontal cleavage. The strata average about 6 inches thick, but may be as thin as 4 inches and as thick as 10 inches. Some slabs detached by wave action were seen, but most of the marae uprights must have been quarried. Near Titikaveka in Rarotonga rectangular depressions in limestone mark the spot from which slabs were removed with metal tools for building a church. From a broken, free edge of the stratum grooves were cut down through the layer of limestone on either side and at the end, thus detaching a slab which was then levered up. By some such method, but with more primitive tools, the Tongarevans must have quarried the slabs for their marae uprights. The slabs were shaped by trimming the side and the top edges. The lower end which was embedded in the ground and the two flat surfaces of the uprights required no working. The trimmed edges are square and straight, though they must have been cut with shell adzes. Tupou Isaia said that pieces of coral heads such as were used in felling trees were used in trimming the edges of the uprights.

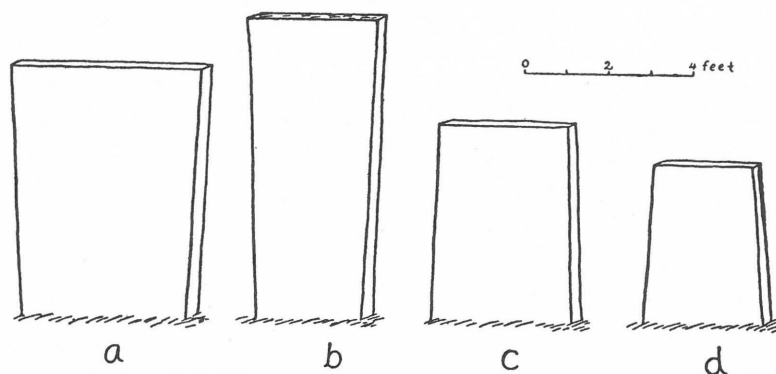


FIGURE 21. Simple marae pillars with clean-cut upper corners: *a*, pillar from Rakahanga marae; *b*, pillar from Kavea marae; *c*, *d*, pillars from Mahue marae. Position on marae not known for *b*; others located on back line.

The pillars vary considerably in size. The largest slabs were placed on the back line and the smallest along the front. Also, the maraes vary in the size of the slabs used. The largest pillars seen are on the dismantled marae at Kavea, and the smallest slabs at Hangarei.

The general shape of the pillars is rectangular but of the pillars accurately measured the widths at the top and bottom of only 9 are exactly the same. In 61 the width is greater at the top, and in 20 it is greater at the bottom. (See fig. 21.)

The thickness of the pillars is fairly constant on each marae, the material on each marae being obtained from the same stratum of limestone. In most maraes the pillars are 6.5 inches thick, but the range for the whole series is between 4 and 8 inches, with rare pillars 10 inches thick.

The width at the ground level is more than 50 per cent of the slabs measured averages between 2 feet and 2 feet 11 inches, with a higher percentage below the average than above. Of 155 slabs measured, three are less than 1 foot and only one is 4 feet wide at the ground level. The width at the top is also between 2 feet and 2 feet 11 inches in more than 50 per cent of the slabs measured for this feature. There is a higher percentage, however, above this average than below it, showing a marked tendency to make the slabs wider at the top. Of the series, two slabs are less than 1 foot wide, and one, which is 3 feet 9 inches wide at the base, is 4 feet 3 inches wide at the top. Top and base widths of more than 100 pillars, most of which are large, are compared as follows:

Of the bottom widths 1.9 per cent and of the top widths 2 per cent are less than 12 inches; 29 per cent of the bottom widths and 21 per cent of the top widths are from 12 to 23 inches; 55.5 per cent of the bottom widths and 52 per cent of the top widths are from 24 to 35 inches; 13 per cent of the bottom widths and 24 per cent of the top widths are from 36 to 47 inches; and 0.6 per cent of the bottom widths and 1.0 per cent of the top widths are more than 48 inches.

The tallest slabs are located along the back line, but tall slabs have also been erected on the side lines on the back half of the maraes. The shortest slabs are along the front line. The range in height on the four boundary lines is as follows:

Inches	Back	Front	Left	Right
12 to 23	....	2	1	5
24 to 35	6	11	8	6
36 to 47	19	5	5	3
48 to 59	26	1	5	3
60 to 71	10	....	....	2
72 or more	6	....	....	....
	—	—	—	—
	67	19	18	26

The commonest height on the back line is between 4 and 5 feet, whereas on the other three lines it is between 2 and 3 feet. Of the 67 back uprights observed on 12 different maraes only 6 reached a height of 6 feet or more. On the Kavea marae, however, of 10 uprights which are still standing, two are 6 feet in height and no less than three are 7 feet. These are the tallest pillars seen on any marae but, owing to the dismantled state of Kavea marae, it was not possible to determine to which boundary lines they belonged. It is possible also that some of the largest and tallest pillars from the back lines of many of the maraes have been removed and used for graves. It is improbable, however, that any of the missing uprights were taller than those of Kavea. In the well-preserved Rakahanga marae the tallest back pillar is 5 feet 10 inches; on the perfect Te Reinga marae, 4 feet 7 inches; and on the almost perfect back line of Atutahi, 4 feet 6 inches.

In a number of pillars horizontal flanges were formed at the upper corners by cutting away the sides (fig. 22, *a*). The upper border is perfectly straight and continuous with the flange projection which may be unilateral, but which on most pillars is bilateral. The outward projections range from 1 to 2 inches, though some reach 3 inches. Most of the projections are

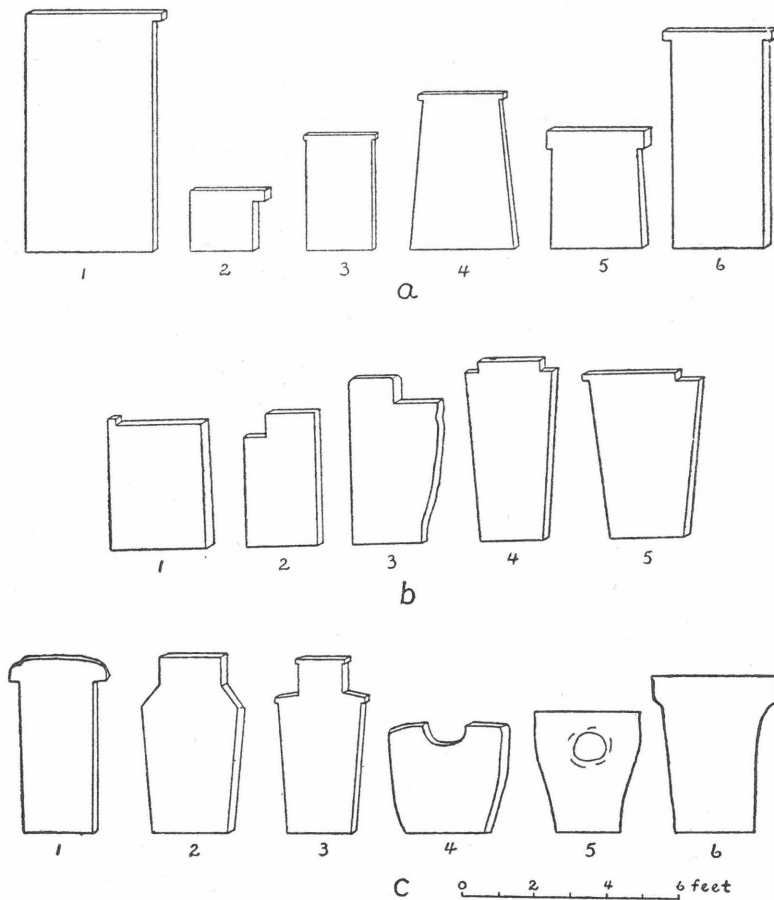


FIGURE 22. Marae pillars. *a*, pillars with horizontal flanges: 1, 2, unilateral flanges; 3-6, bilateral flanges. 1, Rauhara pillar from back line; 2, Te Reinga, right line; 3, Rakahanga, front line; 4, Rakahanga, left line; 5, Rauhara, right line; 6, Te Tohi, back line. *b*, pillars with corner notches: 1-4, back line pillars; 5, pillar of left line. 1, Te Tohi pillar with vertical flange; 2, Te Reinga, even unilateral notch; 3, Te Reinga, deep unilateral notch; 4, Te Tohi, bilateral notches; 5, Rakahanga, shallow notch and flange. *c*, worked pillars: 1, Mahue pillar from back line, bilateral projections; 2, Rakahanga, left, two sloping shoulders; 3, Rakahanga, left, bilateral squared shoulders and bilateral horizontal flanges at shoulders and top; 4, Te Reinga, left, mesial curved notch; 5, Te Reinga, right, perforation evidently a natural flaw and not worked; 6, Te Hara, back, bilateral projections or deep flanges.

squared from the front, with a perpendicular measurement of from 1 to 3 inches, but in one pillar (fig. 22, *a*, 5) the perpendicular measurement is 6 inches. There are flanges on both short and tall pillars and on any boundary. One vertical flange was observed (fig. 22, *b*, 1).

The rectangular notch that cuts off an upper corner is another form of ornamentation (fig. 22, *b*). Most notches are wider than they are deep. Other methods of treatment are shown in figure 22, *c*.

The spacing of the pillars is irregular, and apparently no attempt was made to place them at equal distances apart or even on the same line. The pillars of most marae are closer together on the back line than elsewhere, but in the Rakahanga marae they are slightly closer together on the sides and front. On the back line the average space between pillars is from 8 to 9 feet, but on Te Reinga marae it is 5.7 feet, due to the inclusion of a normal number of 9 pillars in the narrower width. On the Ruahara marae the pillars which remain in position are from 4 feet 7 inches to 5 feet 3 inches apart, and, as the marae is wide, there must have been originally 11 or 12 pillars. Of 5 marae in which all the back pillars could be accounted for, 4 have 9 and one has 8 pillars. On the sides and front the spacing is still more irregular and ranges from 8 feet 8 inches to 19 feet. In the curved back of the Tongariro marae the spacing ranges from 13 feet 6 inches to 18 feet 4 inches. The spacing on the front line is generally wider than it is on the sides. Not only is there no symmetry in the arrangement of pillars on the significant back line, but even on marae where there are 9 pillars the middle one is not exactly in the middle of the line. The presence of 8 pillars, so that there could be no middle pillar, as in the Rakahanga marae, also supports the postulation that the marae builders attached no significance to the middle position.

CURB STONES

The front and side boundaries of the marae inclosure marked by three lines of pillars are further defined by small oblong slabs of flat coral (*karaea*) which are imbedded in the ground in a single continuous row with their long axes horizontal. They fill the spaces between the pillars. The slabs average 6 inches in height, but they may be as high as 10 inches. Besides defining the boundaries, they act as curb stones to prevent the outward dispersal of the coral gravel with which the inclosure is covered, and thus correspond to the stones which define house walls.

For convenience, the lower line of stones will be referred to as the curb, and the coral slabs of *karaea* as curb stones, to distinguish them from the pillars.

Most back lines are destitute of curb stones. In the Rauhara marae (fig. 29) short curbs run in from either side as far as the back of the raised platform. The curb is present in the Arahura marae (fig. 26), but in the Mahue marae (fig. 28) the uninterrupted line of curb stones extends across the back, from 2 to 3 feet behind the back line of pillars. The curb is a constant feature on the front and sides, and where the pillars had been removed the presence of the curbed lines made it possible to ascertain accurately the dimensions of the marae. All the pillars except one have been removed from the Tokerau marae (fig. 23), but the back curbed line remains. The curb stones are continuous, except where short gaps in the line mark the sites from which pillars have been removed.

PLATFORMS

There are raised platforms on four of the maraes, Tokerau (fig. 23), Rauhara (fig. 29), Hangarei (fig. 38), and Te Reinga (fig. 39). The platform is roughly rectangular with the back abutting against the back line of pillars and the two ends extending not as far as the sides of the marae. The platform consists of limestone slabs set on end to form an outer wall to an inclosure, which is filled in with coral boulders. The most perfect platform, at Te Reinga (fig. 39), is paved on its upper surface with small coral slabs laid flat and roughly fitted together. The height of different platforms ranges from 13 to 23 inches except in the Hangarei platform (fig. 38), the front wall of which is 3 feet high. The platforms are from 29 feet 7 inches to 55 feet wide, and from 4 feet 3 inches to 25 feet 9 inches deep.

Lamont (15, p. 122), in describing the ceremony at a marae in Mangarongo, states: "The whole party then advances to an altar—a heap of rude stones . . . O Packa . . . ascended the altar, and, seating himself in front of a large stone . . ." The description definitely points to the existence of a stone platform, but no trace of such a structure is to be found on Rakahanga, which seems to have been the marae used on that occasion. Neither is there a trace of a platform on the nearby Te Vete marae (fig. 37), which might have been the marae referred to. The material of the stone platform has evidently been removed since Lamont's time, and this may have happened to other maraes.

PAVEMENTS AND MARAE HOUSES

Short, narrow pavements of small coral slabs laid flat were seen on 5 maraes, Te Tohi (fig. 24), Te Hara (fig. 25), Rauhara (fig. 29), Tongariro (fig. 34), and Te Reinga (fig. 39). Their presence at Rauhara and Te Reinga, where stone platforms exist, shows that they were accessory to the

platform, though it is conceivable that in maraes which had no platform the pavement may have taken their place.

A variation of the stone pavement is the L shaped alignment of coral slabs set on edge in a single row, as seen on Mahue (fig. 28), Hoenga-waka (fig. 30), Te Rupe (fig. 32), and Nukurea (fig. 33) maraes. One limb of alignment is directed in the front to the back axis of the marae, and the other joins the back end, from which it is directed toward the left, except that in Nukurea it is directed toward the right. On the Mahue and Hoenga-waka maraes the alignments are in pairs, and on Te Rupe and Nukurea they are single. It is probable that a pair was the usual number, and that the singles point to the removal of material. The careful clearing of all the maraes would probably reveal more of these accessory structures.

Upon the pavements or on the gravel beds defined by the L shaped alignments coconut offerings may have been laid, before the priest ascended the stone platform during the marae ceremony.

The defining curbs of small houses on the maraes were seen at Naue (fig. 28) and Te Vete (fig. 37). Though search was made without success for defining curbs on the other maraes, the overgrowth was so thick in some that they may have been overlooked. In others curbing may not have been used. Lamont (15, p. 162) mentions a small house on the Hangarei marae:

This, I was informed, was the island of "Hangary," and belonged to our family. A considerable portion of it was occupied by a more extensive "mara" than any I had yet seen, though, from the number of weeds that filled the space and climbed round the huge grey stones, and also the condition of the house in its centre, which was mouldering to decay, it had evidently been long out of use. Anxious to see what the place contained, I was about to enter it, when violent screams of terror uttered by the boys arrested my steps, and I was obliged to proceed with them towards a point whence their cries had been answered.

The person who answered was the priest, Monitu, who, when told by the boys what Lamont had been about to do, at first looked incredulous and then laughed heartily. It is evident that the house was tapu. It is to be regretted that Lamont did not enter to find out what the house contained, but he clears up the matter in his account of a subsequent ceremony on the marae at Motu-unga in which he states (15, p. 180) that an old priest entered the "mara-house" and brought out a long stick with an immense bundle of feathers and other things tied at one end. This was the local god.

It is thus evident that the marae house was a fairly constant feature, that it was used to contain the material representation of the gods, and that it was tapu to those not belonging to the priesthood. It is difficult to see what other sacred objects could have been kept in the marae house, for the Tongarevans had no special religious regalia or such objects as the

temple drums that were stored in the temple houses of Tahiti and Hawaii. Lamont made no mention of a house on the Rakahanga marae in his detailed description of the ceremony that took place. The explanation is that on this particular marae the material forms of the gods were made from freshly cut coconut leaves which were afterwards discarded. There was thus no use for a marae house. It may, therefore, be inferred that the groups that had permanent forms for their gods in wood and feathers built houses on their maraes in which to store the tapu representations, whereas the groups that were content with temporary ones did not build marae houses.

In some maraes, for example Hoenga-waka (fig. 30) and Rakahanga (fig. 36), short alignments of coral slabs set on edge were placed outside the middle of the front line, and the space between was filled with clean coral gravel. From their position, they seem to indicate the correct approach into the marae inclosure. They suggest local attempts to embellish the maraes. In a few others which I did not record, these structures are on the outside of the side boundaries. They are spread with clean white coral gravel and might have been used in ceremony. Lamont's account (15, p. 121) of the manner in which coconut husk was placed at certain parts of the marae suggests that these small inclosures were used to receive the coconut husk offerings.

INDIVIDUAL MARAES. (SEE TABLE 9.)

1. Kirihuri marae in Motu-unga, on the lagoon side of the island in the vicinity of the ruins of a stone church.

Because of the removal of both pillars and curb stones for a church and graves the original marae lines can not be distinguished. Close to the church is the mound that formed the turtle oven connected with the marae. On top of the mound is a hollow 22 feet in diameter, but the hollow may have been increased by the recent uprooting of a large hala (*Pandanus*; Tongarevan, *hara*) tree that had been planted on top of the mound by one of the early missionaries. The presence of the turtle oven indicates that Kirihuri was the marae which Lamont (15, p. 182) mentions in connection with the cooking of a turtle on an elevation of stones. Lamont states that this marae was different from the one at which he had helped to officiate on the previous day, but, though my informants knew of only one marae on Motu-unga, another may have existed. The Kirihuri marae, said to have been established by the ancestor Taruia, is reported to have been large, well kept, and of higher status than the well-known marae on the neighboring island of Tokerau.

2. Tokerau marae in the Rangiriri Division of Tokerau, is on the lagoon side of the island on dry raised ground, free of shrubs and weeds (fig. 23).

All the pillars except one have been removed to form a wharf. The curb stones, however, are in position and plainly indicate the boundaries of the marae. The inclosure is almost rectangular, with but a difference of 2 feet between the narrower back and the wider front. The long axis is between the ends and runs due north and

south, with the back toward the lagoon on the south. The distinguishing feature of the marae is the raised platform, which has four walls of short limestone slabs set upright to form a quadrangular inclosure. The back line is continuous with the back line of the main inclosure and has one upright pillar. The interior is filled with lumps of coral which do not rise to the top of the inclosing walls, some of the stones evidently having been removed. The Tokerau marae is said to have been one of the most important ceremonial maraes of Tongarega.

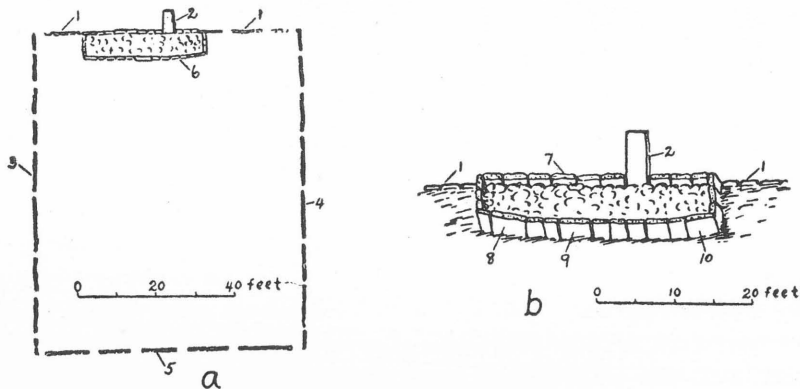


FIGURE 23. Tokerau marae: *a*, general plan; *b*, raised platform. 1, curbed back line continuous with back wall of raised platform; 2, standing pillar in back wall of platform; 3, left curbed line showing gaps, pillars removed; 4, right curbed line with gaps; 5, front curbed line with gaps; 6, raised platform; 7, back wall of raised platform; 8, limestone slab in front wall, 4 feet 3 inches wide and 1 foot 7 inches high; 9, limestone slab, 3 feet 7 inches wide, 1 foot 1 inch high; 10, limestone slab, 3 feet 8 inches wide, 1 foot 2 inches high; other wall slabs narrower. Platform does not occupy exact middle position on back line.

3. Nui-te-kainga marae on the island of Nui-te-kainga on the north side of the lagoon was not seen. It is reported to be well preserved and much like the others.

4. Te Tohi marae in the Punua division of Ruahara, on the sea side of the island close to the raised bank, with the back toward the sea (fig. 24).

The long axis of the marae is between the ends. The sides are approximately equal in length, but the back is 4 feet 3 inches wider than the front. The back line has 6 pillars standing, 5 of which are flanged or notched. Another flanged pillar is broken. Standing pillars are fairly close together. Long intervals indicate that at least 4 have been removed, making about 11 pillars on the back line. The two end pillars abut against the side lines, and there are no curb stones between the pillars. The front line is marked by curb stones, and wide, short pillars are standing. The right side is curbed and has three pillars standing, two of which have unilateral horizontal flanges. One pillar is broken off and two others are missing, making a total of six pillars for the right side. The left side line is obscured by a thick growth of *ngoso* shrubs. The pillars have been removed, but the line is curbed. Toward the back there is a short, narrow pavement of flat *karaea* slabs, and near the front on the left are three coral slabs set on edge to form an open rectangle. The inclosed space is

covered with white coral gravel. It looks like a fireplace, but there is no evidence of charcoal or burned coral in this or similar inclosures. Offerings in connection with the religious ritual were probably laid upon them.

5. Sivalau marae on Ruahara. The second marae in the Sivalau division on Ruahara was not examined.

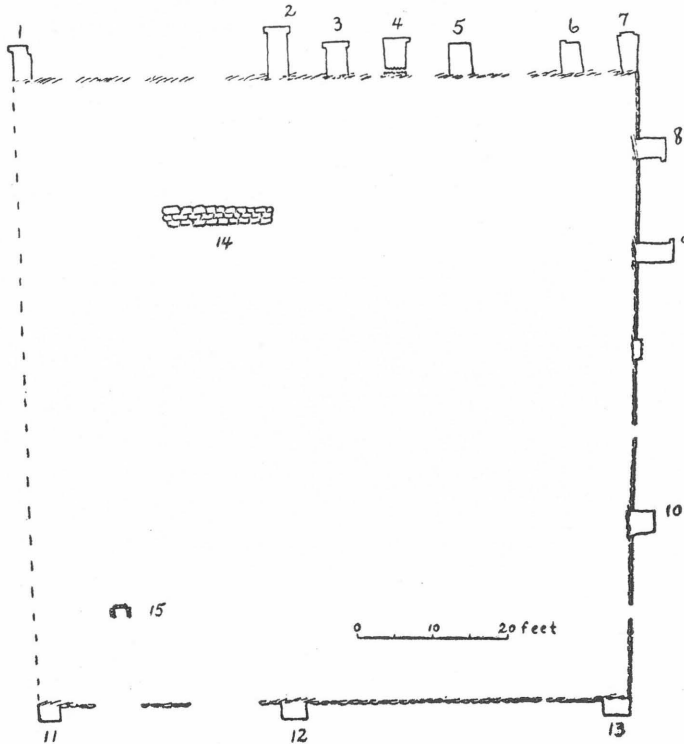


FIGURE 24. Te Tohi marae: 1-7, pillars on back line; 8-10, pillars on right side line, average space between pillars on right when all standing, about 10 feet; 11-13, low pillars on front line; 14, short pavement; 15, open rectangle of two side slabs of coral 10 inches long and end piece 12 inches long set on edge and projecting upward about 10 inches. Pillars 1-11 range in height from 2 to 6 feet, in bottom width from 1 foot 8 inches to 2 feet 10 inches, in top width from 1 foot 8 inches to 3 feet 5 inches. Average space between pillars 2-5, 5 feet 1 inch. Pillar 2 shown in figure 22, *a*, 6; pillar 7, figure 22, *b*, 4.

6. Te Hara-taurekareka marae on Rukutia, on the sea side of the island with the back to the sea, close to the raised shore, where rocks have been heaped up close to the back but distinct from the boundary of the marae (fig. 25).

The full name of the marae is Te Hara-taurekareka-te-sau-a-tonga, which means "The beautiful hala growing in the south." The marae is said to have been built by

the ancestor Turua. The sides of the marae are approximately equal, with but 1 foot different in length. The long axis is transverse, with the back nearly 5 feet narrower than the front. The pillars have been taken away from the front and sides to form a wharf, but two pillars remain standing on the back line and two others have been broken. Two fallen pillars are near the right side. A small pavement is located about 9 feet from the back line and to the left of the middle line. On the right of the pavement stands a short pillar. The sides and front are curbed, but no curb stones have been laid between the pillars on the back line.

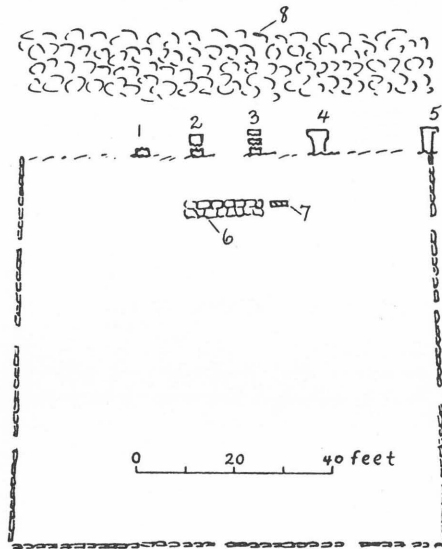


FIGURE 25. Te Hara-taurekareka marae: 1-5, pillars on back line; 6, pavement; 7, short pillar on right of pavement; 8, piled up rocks clear of back line. 1-3, broken pillars; 4, pillar shown in figure 22, c, 6; 5, pillar with horizontal flange on one side. Spacing between pillars 1-4 ranges from 8 feet 6 inches to 10 feet 10 inches. Three pillars missing from back line.

7. Arahura marae, on the sea side of Vaselu, a small island planted with coconuts and lying north of Tautua, from which it is separated by a shallow channel (fig. 26).

The marae is almost square, with a slightly longer transverse axis. It is unique in having a small quadrangular inclosure projecting back mesially from the main back boundary, which is toward the sea. One of the old men of Tautua termed the small inclosure the *raukava* and stated that it was the part of the marae occupied by the *au mana*, or people with authority, namely, the priests (*tohunga*). Pillars had been spaced along the boundaries, but some had been removed for graves, which were located within the marae. The remaining pillars are low. The boundaries are curbed.

8. Papaki-reia marae, Tautua, is now occupied by the village church and cemetery of Tautua. Not even a curb stone of the original structure remains in position. The marae followed the fate of those of Omoka, Motu-

unga, and Te Puka, where close proximity to a Christianized settlement led to the use of the limestone and coral material for churches, graves, and the curbing of village roads.

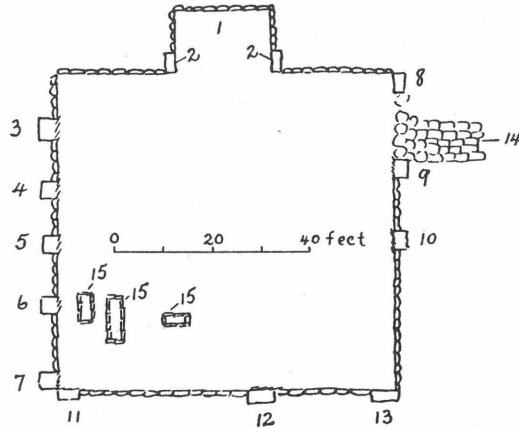


FIGURE 26. Arahura marae: 1, back quadrangle; 2, pillars on each side of quadrangle at back line junction; 3-7, pillars on left side; 8-10, pillars on right side; 11-13, pillars on front line; 14, paved path; 15, graves.

9. Mahora-kura marae on Kavea, a short distance inland from the lagoon side of the island, the waterfront of which is built up with stone to form a wharf (fig. 27).

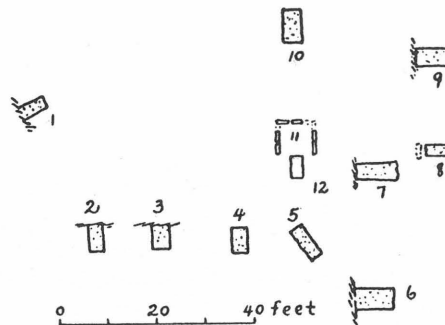


FIGURE 27. Mahora-kura marae: 1, pillar set obliquely on left; 2-5, pillars evidently forming one boundary line; 6, 7, pillars forming another line at right angles to previous one; 8, 9, two pillars forming another line; 10, pillar lying on ground; 11, house foundations of flat coral slabs set on edge and 6 inches above ground (left wall of two slabs each 2.5 feet long, gap of 1.5 feet; right wall of two slabs, 3.5 and 2 feet in length, 1 foot gap; back wall of two slabs, 2.5 and 3 feet in length, 2 foot gap on right); 12, pillar 2 feet wide by 4 feet high on open side of house foundations. Pillars 1, 2, 3, 6, 7, 9, erect; the others down.

Mahora-kura must have been an imposing structure before it was dismantled. From this marae pillars were taken to construct a stone pulpit on the sea side of the island, where open air services were held after the advent of Christianity. The remaining pillars are large and massive and are of greater average size than those on any of the other maraes. Part of one boundary line can be distinguished, but the four erect pillars seem to be out of alignment. The foundations of a house that must have been within the marae precincts are present. There are no curb stones.

10. Mahue marae, Haitaki division of Naue, on the sea side of the island with its back toward the sea (fig. 28).

The boundary lines of Mahue marae are unequal, the longest being the right side, and the shortest, the front. The back is longer than the left side and 10 feet 4 inches wider than the front. The pillars are in position, 7 on the left, 6 on the right, 5 on the front, and 9 on the back. Curb stones mark the places between the pillars on the sides and the front. A back line of curb stones is separated by a distinct space from the alignment of the back pillars. Two L shaped arrangements of stones are on either side of the middle line toward the back of the inclosure. Two of the back pillars have bilateral horizontal flanges, and one has an upper corner notch on the right.

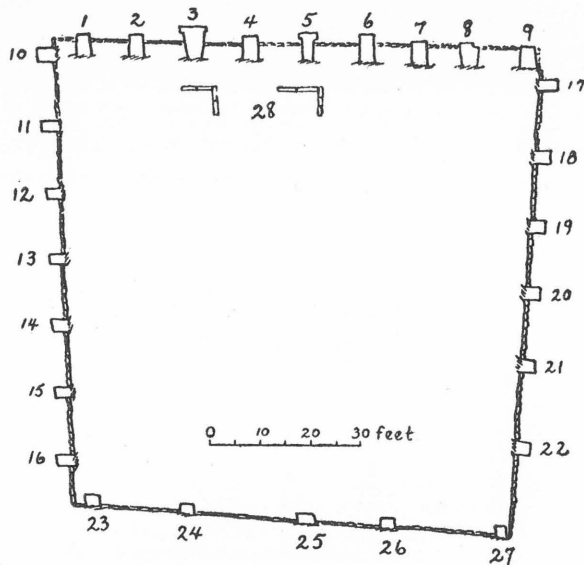


FIGURE 28. Mahue marae: 1-9, pillars of back line; 10-16, pillars on left side; 17-22, pillars on right side; 23-27, pillars on front line; 28, two L shaped alignments with transverse limbs of two coral slabs and longitudinal limbs of two slabs on the left and three on the right, set on edge. Pillars 3 and 5 bilaterally flanged; pillar 8 notched. Height of pillars 1-9 ranges from 3 feet to 5 feet 2 inches; bottom width, 1 foot 10 inches to 3 feet 3 inches; top width, 2 feet 2 inches to 3 feet 10 inches. Space between pillars 1-9 ranges from 6 feet 9 inches to 9 feet 4 inches. Back curved line is 2 feet 2 inches behind pillar line on the left and 3 feet on the right. Pillar 6 shown in figure 21, c; pillar 7, figure 21, d.

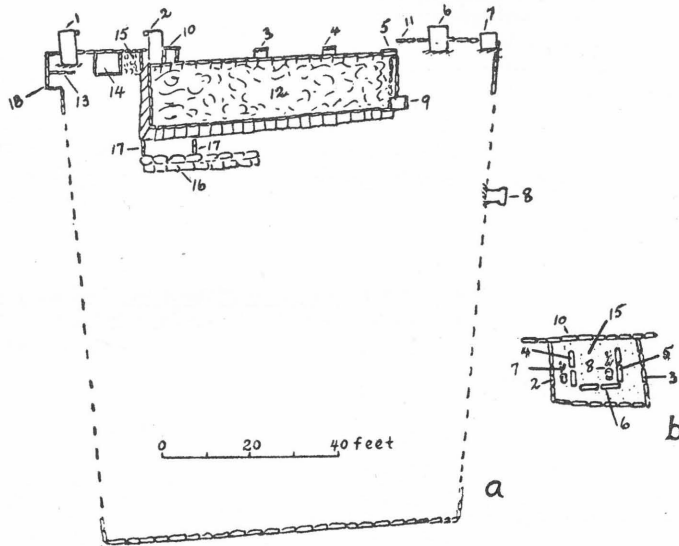


FIGURE 29. Rauhara marae. *a*, general plan: 1-7, pillars on back line (1, tallest of series, 6 feet 7 inches high, flange on right; 2, pillar with flange on left, 6 feet 4 inches high, set at back of platform (12); 3, 4, broken pillars at back of platform; 5, broken pillar included in back wall of platform; 8, double flanged pillar on right side; 9, pillar included in right wall of platform; 10, back line of curbstones extending from left corner, passing 2 feet behind corner pillar (1) and 2 feet 4 inches behind platform (12), and turning in at right angles on right to meet back wall of platform; 11, back line of curbstones commencing 1 foot 3 inches behind right back corner of platform and continuing to back of left edge of right corner pillar; 12, platform formed of four walls of limestone slabs set vertically (height of walls, 1 foot 7 inches on back, 1 foot 6 inches on front), inclosure filled in with coral boulders but not quite to top, giving impression as in Tokerau marae that some of material has been removed; 13, short curb line in front of pillar completing an inclosure floored with white coral gravel, thus raising it above surface of marae; 14, small inclosure; 15, paved open inclosure defined on right by curb extending from back curb line to left back corner of platform and covered with white coral gravel; 16, narrow transverse pavement with left end in line with left end of platform; 17, rows of two curbstones set on edge; 18, angle on left boundary; line runs to right of angle for 2 feet 7 inches and turns at obtuse angle to run forward to meet front line at left corner; front boundary curbed, with no spaces for pillars. *b*, inclosure (*a*, 15), enlarged scale, formed by back curb line (10) and front and side lines of curbstones set on edge: 2, left side, 3 feet 4 inches long; 3, right side, 4 feet long; 4, two large curbstones set parallel with left side; 5, two large curbstones set parallel with right side; 6, two curbstones, closing front of inner inclosure, open at back; 7, skull and bones; 8, skull and thigh bones.

11. Rauhara marae, Ivirau district of Naue, on the sea side of the island with its back to the sea (fig. 29).

The long axis lies between front and back. The sides are uneven in length, and the back is 21 feet 4 inches wider than the front. In the uneven length of all four boundaries Rauhara resembles the neighboring Mahue marae. It is like the Tokerau

marae in that there is a raised platform at the back. The platform inclosure is not quite filled to the top with coral stones, giving the impression as in the Tokerau marae that some of the material has been removed. On the left of the platform is a small inclosure containing human bones and skulls and covered with white coral gravel. The pillars at the back are in line with the back of the platform. Two pillars have single horizontal flanges, 2 have the ordinary squared ends, and 3 are broken. The uneven spacing leads to the conclusion that 1 pillar is missing, which makes a total of 8 pillars at the back. A back line of curb stones lies outside the pillar line at both ends, but evidently the intermediate part at the back of the platform has never been filled in. All pillars on the left side and all but a double flanged pillar on the right have been removed. The front line is formed of higher curb slabs which form a continuous line throughout without any spaces for pillars, which were apparently not used on this line. A narrow transverse pavement is situated in front of the platform on its left.

12. Hoenga-waka marae, Tepetepe, district of Hoenga-waka, on the sea side of Tepetepe, separated from it by a depression which may be covered at high tide (fig. 30).

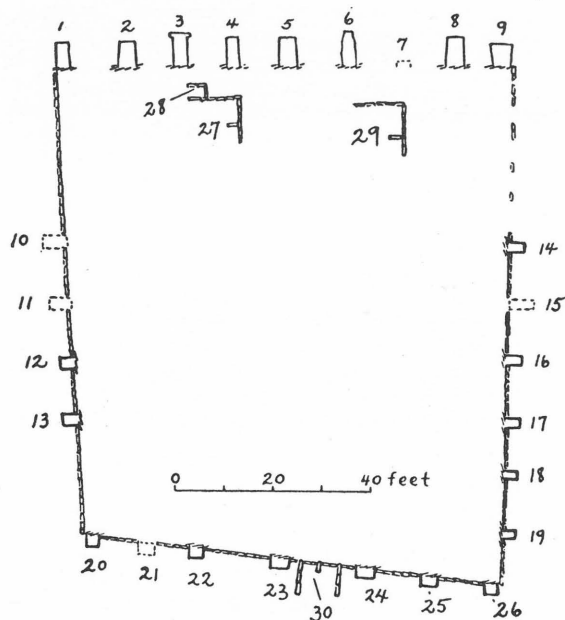


FIGURE 30. Hoenga-waka marae. 1-9, pillars of back line: 3, pillar with double flange; 6, tallest pillar; 7, space occupied by missing pillar; average height of pillars, 5 feet 2 inches; pillar 2 is 9 inches thick, and others, 6 inches. 10-13, left side pillars: 10, 11, down; 12, 13, standing. 14-19, right side pillars: 15, down; others standing. 20-26, front line low pillars: 21, down. 27, L shaped curbed lines with a short limb 2 feet long extending to left from longitudinal limb. 28, small inclosure, open on left, 2 feet 5 inches wide and 2 feet deep. 29, right L shaped lines with short transverse limb 2 feet long. 30, three short lines of curbstones on outer side of front line: middle line shorter; fine gravel spread between lines.

The back of the marae is to the sea. The long axis is from front to back and the back is wider than the front. The sides are also uneven with the right side longer than the left. The back line is composed of 9 pillars, 8 still standing, and 1 missing. No curb stones are present on the back line. The spaces between the pillars range from 7 feet to 9 feet 7 inches and average 8 feet. The right side has 5 pillars standing and 1 down, and a space of 36 feet is without pillars. Judging from the average spacing, probably 3 pillars have been removed, which would make a total of 9 pillars for the right side. The left side has 2 pillars standing and 2 down; the others have been removed. The front line has 6 pillars standing and 1 down, making a total of 7. No raised platform is present, but there are two L shaped lines near the back, similar to those in the Mahue marae. Curb stones extend along the sides and front, and three short lines of curb stones form an approach to the front line.

13. Te Puka-nui marae, Te Puka, on the sea side of the island with its back toward the sea (fig. 31).

This marae, though its name signifies "big Te Puka," is a small structure. Its long axis is between front and back. The sides are equal, but the back is wider than the front. All the pillars of the back, front, and sides have been removed to form graves which are located both within and outside the inclosure. The curb stones forming the front and side lines are in position. A few thick limestone slabs about 10 inches high are left on the back line.

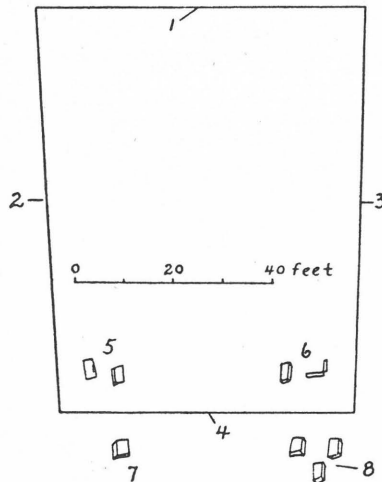


FIGURE 31. Te Puka-nui marae: 1, back line; 2, left side; 3, right side; 4, front line; 5, 6, graves within the marae; 7, 8, graves outside marae.

14. Punaruku marae, Te Puka. The site is marked by the ruins of the church and the cemetery close to the lagoon edge of the island near two small fish ponds.

Tradition stated that Punaruku marae was built by the ancestor, Mahuta, who came from Tahiti in his voyaging canoe, Waimea, and settled down at Te Puka. A village established by the missionaries on Te Puka included the ancient marae within its boundaries. As a result, the marae was completely demolished, as were the maraes of the villages at Omoka, Motu-unga, and Tautua. The pillars of the marae were

used for graves and were also incorporated in the walls of the Christian church. Even the curb stones of the marae were removed and used to define the edges of the village road. Hence, no original stone remains in position to mark the boundaries. My informants stated that the marae had its long axis running east and west and that the highest stones marking the back line were on the lagoon side, as they are in the Tokerau marae.

The Punaruku marae was described by Lamont (15, p. 235) as follows:

The following day . . . I was shown the mara, celebrated throughout the group for its extent, the size of the stones, and for some peculiar religious qualities. In the centre were several tombs of great Tepuka chiefs, long since called to their fathers. The large stones forming these structures would not have made contemptible monuments for some of our own illustrious dead. One in particular was pointed out, supposed, as well as I could understand, to be that of the founder of their race, the original Mahuta, who came here with his wife Ocura, bringing in his great canoe cocoa-nuts and other plants for the earth, fish for the sea, and birds for the air. As he is universally admitted to have landed in Tepuka, we may infer that he came from the southern islands and not from the land beyond the sky, as the ancient faith of the islanders would lead us to believe.

Lamont's inference about "the ancient faith of the islands" shows lack of understanding. The human history of Mahuta is quite well known to his descendants, and "the land beyond the sky" is the land beyond the horizon.

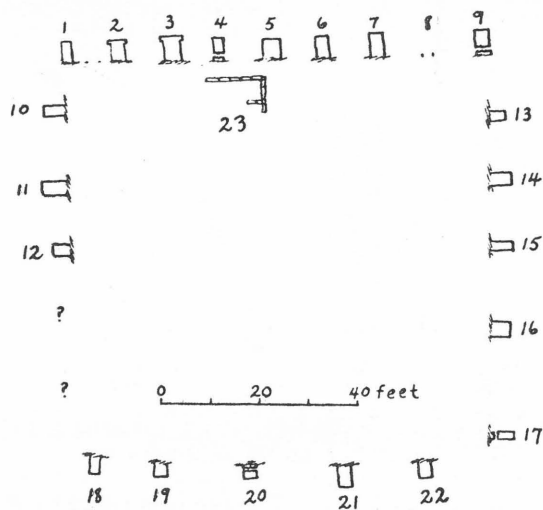


FIGURE 32. Te Rupe-tangi-rekareka marae. 1-9, pillars of back line: 2, 3, pillars with double flanges; 3, tallest pillar, 4 feet 6 inches high and 3 feet 2 inches wide at bottom; 8, space of missing pillar; average space between back pillars, 7 feet 9 inches. 10-12, three remaining pillars on left side. 13-17, four standing pillars on right side: 17, pillar broken; spaces between pillars range from 10 feet 9 inches to 19 feet. 18-22, four standing pillars on front line: 20, pillar broken; spaces between pillars range from 10 feet 10 inches to 16 feet 3 inches. 23, L shaped figure of single rows of coral slabs with short limb 2 feet long.

15. Te Rupe-tangi-rekareka marae, Atutahi, on the seaward side of the island, with the back line close in under the raised sea bank (fig. 32).

The meaning of the marae name is "the pigeon that cooes sweetly." The long axis is from side to side, with almost equal sides and the back slightly wider. No curb stones were found between the pillars, and as no coral slabs were seen, the marae boundaries seem not to have been defined by the usual lower lines of curb stones. The back line had, originally, 9 pillars. The 2 end pillars abut against the sidelines. Each of the other three sides has 5 pillars. The row of pillars forming the front line is curved. Near the back line is the L shaped formation of low coral slabs set on edge. The back line and the right side are overgrown with *ngoso*.

16. Nukurea marae, Vaiari, on the lagoon side of the small island with its back toward the west and not toward the main lagoon (fig. 33).

The long axis is from front to back. The marae boundaries are much overgrown, and the positions of the pillars were only approximately ascertained. Near the back some lines of low coral slabs have been set on edge.

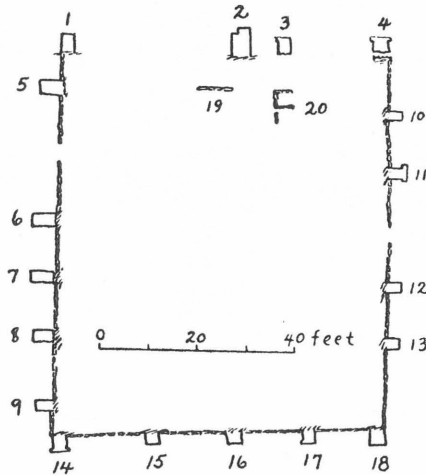


FIGURE 33. Nukurea marae. 1-4, remaining pillars of back line: pillars between 1 and 2 removed, leaving space of 31 feet 10 inches; 2, tallest pillar, 5 feet 2 inches high and 3 feet 3 inches wide at the bottom, with a notch 10 inches wide and 7 inches deep on top left corner; flanged pillars 3 and 4, down. 5-9, standing pillars on left side with one missing between 5 and 6. 10-13, standing pillars on right side: 11, pillar with double flange. 14-18, standing pillars on front line: 14, pillar with double flange; 17, pillar with single flange. 19, single line of curbstones. 20, longitudinal line of curbstones with two short limbs extending to right at right angles.

17. Tongariro marae, Hakasusa, in the Hakasusa division of the largest island, on the lagoon side, with its back to the lagoon (fig. 34).

Tongariro marae shows a marked departure in ground plan, the back and front boundaries being curved. The back is much narrower than the front. The pillars on the back boundary are widely spaced and, with the exception of three, are not high.

None of the pillars is flanged or notched. On the sides the pillars are low and irregularly spaced. Some have probably been removed. The poor supply of limestone in the immediate neighborhood is reflected in the use of low pillars and of coral slabs on the front boundary. The marae inclosure is in a hollow with the back sloping upward. Near the back boundary is a short line of coral slabs set on edge with a limestone pillar set upright on its right. Across the middle longitudinal line and about 24 feet from the back line is a narrow pavement. Two low pillars are also set upright within the inclosure near the right side and toward the front. Four Triton shells were found at the base of one of the front pillars. The marae is said to have been built by one of the brothers, Oriaitu or Umutoro, who lived eight generations back from 1900. A song used in connection with this marae is given on page 216. An informant stated that there was a marae named Tangaroa in the Takurua district of Hakasusa. There may have been a confusion in names between Tongariro and Tangaroa.

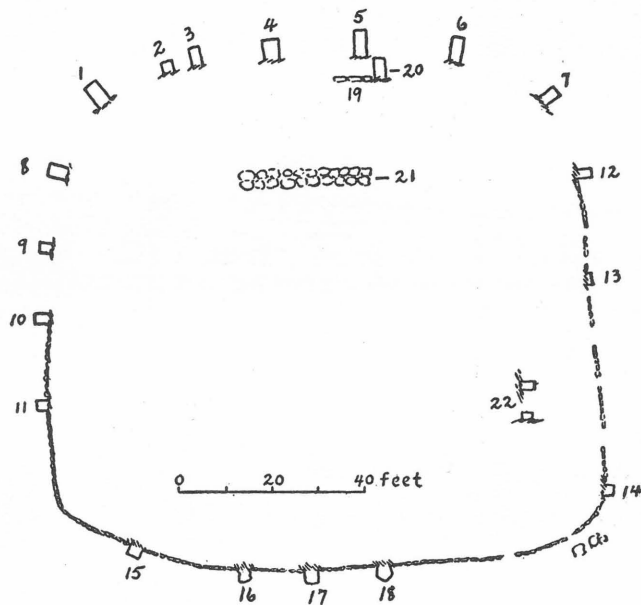


FIGURE 34. Tongariro marae. 1-7, standing pillars on curved back line: excluding pillar 2, the six pillars average 4 feet 2 inches in height; 7, tallest pillar, 5 feet high. 8-11, standing pillars on left side. 12-14, short pillars on right side. 15-18, short pillars on curved front line, *Triton* shells lying at the base of pillar 16. 19, line of low coral slabs. 20, pillar on right of coral slabs. 21, transverse pavement of double row of coral slabs laid flat. 22, low pillars set upright within marae.

18. Hakataungari marae, Hohonu district of Hakasusa, on the lagoon side of the island, with its widest end toward the lagoon (fig. 35).

The marae has been converted into a cemetery and the pillars have been removed, leaving only the curb stones to delineate the boundaries. It is said to have been constructed by Turua, who flourished seven generations back from 1900. Another version of the legend states that it was made by Pokaipuni, a contemporary of Turua. Within the marae are stones marking graves. One grave has an erect, double-flanged pillar.

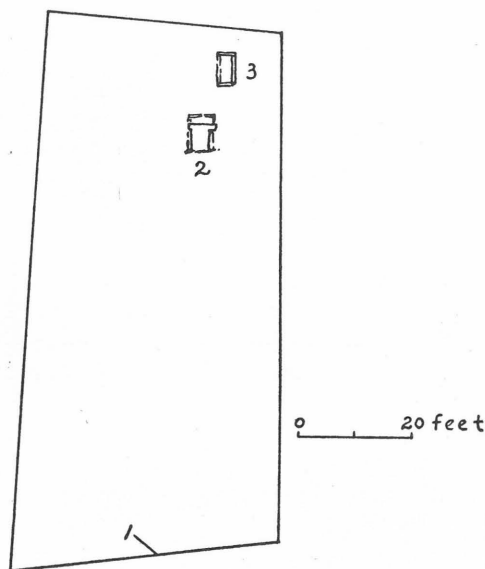


FIGURE 35. Hakataungari marae, all pillars removed: 1, wider, lagoon end, probably the back; 2, grave with upright pillar 4 feet high, 3 feet 3 inches wide at bottom, 3 feet 7 inches wide near top, horizontal flange at each upper corner; 3, grave, without pillar.

19. Rakahanga marae, Mangarongaro, in about the middle of the Mangarongaro district near Te Toto and not far from the reef where the *Chatham* was wrecked, but nearer the lagoon side of the island (fig. 36).

The Rakahanga marae is without doubt the first one that Lamont (12, p. 111) saw and described as a sort of "Stonehenge." Some doubt was expressed by my informants as to whether the marae was named Rakahanga or Awanui. Its long axis is between front and back, at right angles to the lagoon shore. The back, which lies toward the sea, is slightly wider than the front, and the sides are almost equal. The marae was mapped out by K. P. Emory during his visit in 1924. The back, which corresponds to Emory's "western side," contains, as he observed, the largest pillars, which number 8. The total number of pillars on the left is 9; on the right, 9; and on the front, 7. The right side pillars are of simple rectangular shape, but four left side pillars are flanged and notched, and one front pillar has a double flange. Curbing between the pillars is present on the front and sides but absent on the back line. There are no indications of a pavement, platform, or house site.

20. Te Vete marae, Mangarongaro, near the lagoon, with its long axis at right angles to the lagoon shore and its back toward the sea (fig. 37).

The pillars of the back line have been removed for the innumerable graves that are dotted about. The marae has equal ends and equal sides. The broken lines of curb stones indicate the boundaries clearly. There are foundations of a house within the inclosure, and as these are nearer the lagoon end, it is presumed that the back of the marae was toward the sea.

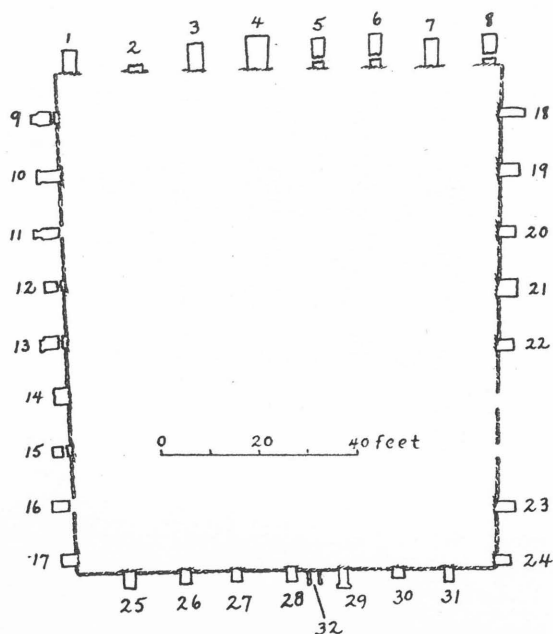


FIGURE 36. Rakahanga marae: 1-8, pillars of back line, four broken and four up-right; 9-17, pillars of left line, four flanged and notched and 3 fallen; 18-24, pillars of right line, seven rectangular and two missing; 25-31, low pillars of front line, one double-flanged; 32, four coral slabs set on edge. Pillars 9 (fig. 22, c, 2), 10 (fig. 22, a, 4), 11 (fig. 22, c, 3), and 13 (fig. 22, b, 5) flanged and notched.

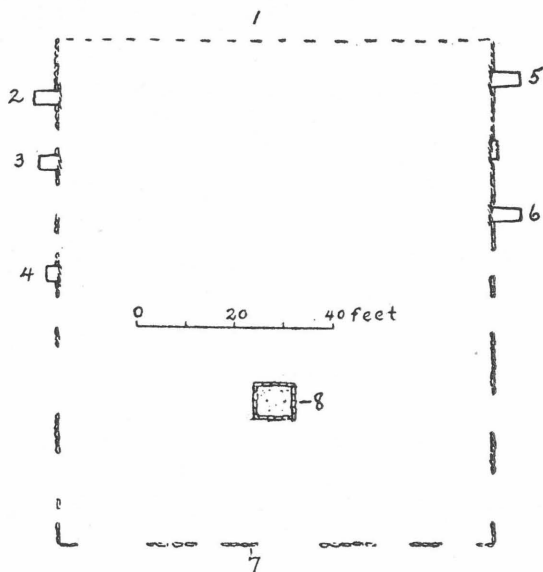


FIGURE 37. Te Vete marae, equal ends and equal sides: 1, back line with pillars removed; 2-4, pillars standing on left side; 5, 6, remaining pillars left on right side, 5 feet 4 inches and 5 feet 3 inches high respectively; 7, front line, no pillars; 8, house site defined by curbstones and floored with coral gravel.

21. Hangarei marae, Hangarei (fig. 38), on the seaward side of the island, with its back resting against the raised bank close to the seashore.

The long axis is transverse, and the back wider than the front. The back boundary of the inclosure proper is irregular, formed of three interrupted sections which come forward toward the right, making the right side shorter than the left. A raised stone platform extends back from the middle part of the back line, and its height above the marae floor rises with the ground at the back. Inclosures defined by coral stones set in the ground are situated on either side of the stone platform, but they do not extend outward as far as the side boundaries. The middle and right of the back boundary are formed by upright blocks of limestone which set off the lower level of the marae floor from the raised ground at the back. Two tall pillars are located on the short left section of the back boundary, but the rest of the line has no pillars. The left side is poorly defined toward the back, but toward the front half it is well curbed and has four pillars. The right side is well marked throughout by curb stones and carries 11 short pillars, 3 of which are broken. The front line is well curbed with higher stones at each end. Five short pillars remain in position, two of which are broken. A depression in the ground on the front right corner has been filled in with stones to raise the level to 12 inches above the outside surface. Coral gravel is laid over the stones. About 13 feet outside of the front line a single row of stones is set in the ground parallel with the front line, and from its left end another row extends away from the marae at right angles. They form the boundaries of a path leading to a turtle oven which is 39 feet from the left half of the marae front line. The Hangarei marae is said to have been built by Amosia, 13 generations back from 1900.

22. Te Reinga marae, Motukohiti, at Ara-a-hupu, not far from the boundary between Motukohiti and Omoka near the lagoon side of the island, with its long axis parallel with the lagoon shore and its back to the north (fig. 39).

Te Reinga has a perfectly preserved raised platform, and though small, it is the best preserved of the Tongarevan maraes. The longer sides are nearly equal and the back is wider than the front. The back line contains 9 pillars, 2 of which are notched. The left side has 8 pillars, 2 being broken. There is a curved notch in the middle of the upper edge of the pillar nearest the back corner. The right side has 7 pillars, 1 a single horizontal flange, 1 perforated, 1 broken, and 1 missing. The raised platform is roughly rectangular. The walls are formed of large, irregularly shaped slabs of coral. The inclosure so formed is filled with pieces of coral to the top of the walls to form a level surface which is paved with flat pieces of coral fitted together. In front of the platform are two narrow transverse pavements bounded on the right by low coral slabs set on edge. The front line of pillars contains four low pillars widely spaced, and to the outer side of the middle four short lines of coral slabs are set on edge with coral gravel spread between them. Te Reinga is said to have been built by Ponakino, a son of Matakunui, who flourished 14 generations ago.

23. Marae of refuge: Te Papa-o-Sokoau marae, Motukohiti, close to the Omoka boundary and about equidistant from sea and lagoon (fig. 40).

The marae consists of a raised stone platform ranging in height from 3 feet 9 inches to 4 feet 6 inches and forms an imposing structure. The ground plan is irregular and roughly resembles a headless human body. The walls defining the boundaries of the figure are formed of large coral blocks set on end and firmly imbedded in the ground. The interior is filled in with coral boulders to make an even surface which

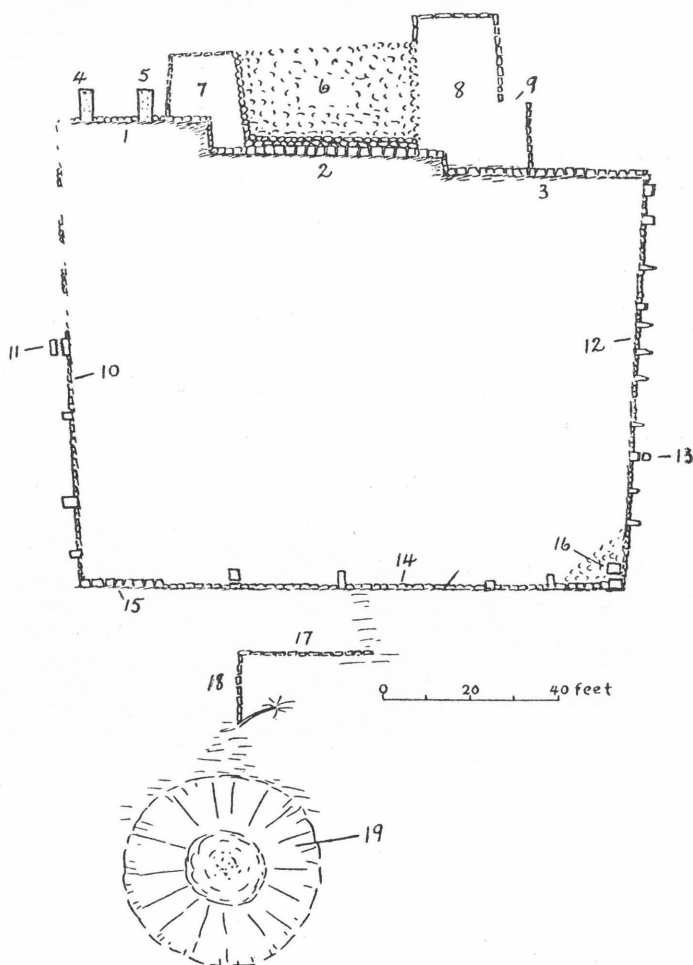


FIGURE 38. Hangarei marae. 1-3 sections of interrupted back line: 1, left section; 2, middle section defined by limestone slabs which in middle part of section form front wall of raised platform (6); 3, right section defined by low limestone slabs. 4, pillar 6 feet 5 inches high, 2 feet 3 inches wide at bottom, and 2 feet 10 inches wide at top. 5, pillar broken, 6 feet 9 inches high and 10 inches thick. 6, raised stone platform, differing from platforms in Tokerau, Rauhara, and Te Reinga in lying outside of back line (front boundary formed of coral boulders built up above the back line (2) of limestone slabs, 3 feet above marae floor; coral boulders forming platform somewhat scattered, due to operations of seekers after land crabs that seek refuge under stones). 7, left back inclosure above level of marae floor defined on left by single line of low stones, with similar line at back and no traces of house foundations. 8, right inclosure above level of marae floor, no traces of house foundations. 9, gap. 10, left side with few small pillars standing. 11, broken pillar 3 feet 4 inches wide and 2 feet high. 12, right side, number of small pillars standing, height ranging from 18 to 26 inches except broken pillar (13). 13, pillar 3 feet 6 inches high. 14, front line, three standing pillars and two broken. 15, left corner with higher coral slabs. 16, right corner raised and filled in to height of 12 inches to level marae floor. 17, line of stones. 18, line of stones. 19, turtle oven on mound of accumulated discarded coral used in cooking, 130 feet in circumference and about 6 feet high with hollow at top containing charcoal and ashes from cooking fires.

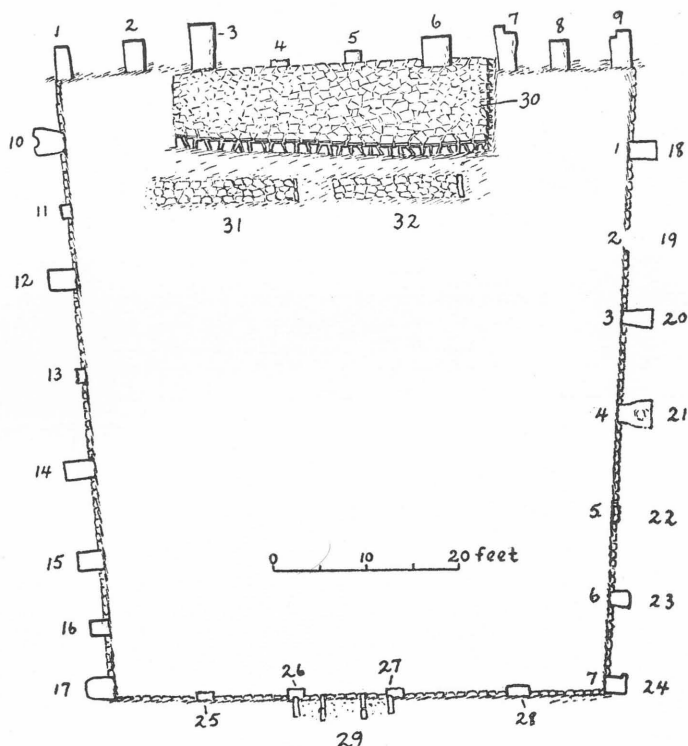


FIGURE 39. Te Reinga marae: 1-9, pillars on back line, average space between pillars 5 feet 6 inches; 10-17, pillars on left side, average space between pillars 6 feet 6 inches; 18-24, pillars on right, pillar 19 missing, pillar 22 broken; 25-28, pillars of front line, very low, one being 11 inches high; 29, four rows of coral slabs set on edge at right angles to curb; 30, platform (height ranges from 22 inches on left to 23 inches opposite pillar 6 and 20 inches on right wall); 31, left pavement; 32, right pavement. Pillar 7 is notched on right (fig. 22, *b*, 3); pillar 9, notched on left (fig. 22, *b*, 2); pillar 10, curved median notch (fig. 22, *c*, 4); pillar 21, perforated (fig. 22, *c*, 5); pillar 24, simple flange.

is covered with a layer of coral gravel. Long recesses are formed between what correspond to the arms and the body, and another shorter recess lies between the short legs. There are two other recesses on the body, that on the right being connected externally with the recess between the right arm and body. Upon the surface of the platform seven rectangular inclosures are defined by coral slabs set on edge. The seven rectangular spaces, which resemble grave inclosures, contain white coral gravel in shallow layers that rest on the coral boulder filling of the marae. The gravel was turned over and searched, but no bones or other objects were present in any of the inclosures. The larger inclosures may have been used for the exposure of dead bodies which were afterward removed.

This structure shows such a marked departure in ground plan and construction that it would not have been classed as a marae were it not for the assurance of Pa, who is not only the oldest man on the atoll, but owns the land surrounding the

structure. Pa stated that the marae was not used for the same purposes as other maraes but corresponded to a city of refuge. Any person who committed a crime and was in danger of losing his life was immune from attack if he gained the marae and remained there. The marae was named after Sokoau, a daughter of Tangaroa. Sokoau was killed by her husband, Tonu, for infidelity. The husband cut up her body and distributed the pieces among his people, who consumed them. To avenge her death, Sokoau's two brothers killed Tonu. According to Pa, this is the only record of cannibalism in Tongarevan tradition. The horror with which it was regarded led to the application of the name, Sokoau, to the refuge marae to remind avengers of her story and of the disasters which followed the gratification of the blood lust for vengeance. The term *papa* refers to the platform of stone, but Papa-o-Sokoau may be freely translated, the "Refuge of Sokoau."

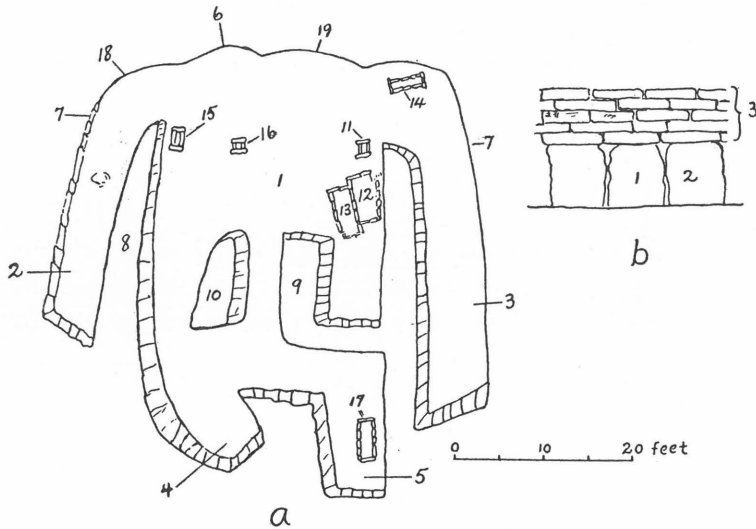


FIGURE 40. Marae of refuge, Te Papa-o-Sokoau. *a*, ground plan: 1, body 2, right arm; 3, left arm; 4, right leg; 5, left leg; 6, longitudinal distance to point 4, 47 feet 6 inches; 7, 7 points between which transverse dimensions are 40 feet 8 inches; 8, recess; 9, recess, communicates with recess on its outer side; 10, recess closed on all sides; 11-17, small inclosures; 18, highest point of marae, 4 feet 6 inches from ground; 19, point at which height is 3 feet 11 inches; height gradually decreases to 3 feet at lower end. *b*, outer wall facing front at point *a*, 18: 1, slab, 21 inches high; 2, slab, 22 inches high; 3, layers of slabs loosely fitted on flat uprights.

24. Omoka marae, Omoka, on the site now occupied by a church. The marae has been dismantled—the fourth marae completely destroyed by the modern villages. The curbstones marking the village road and the limestone slabs in the cemetery were taken from it. Lamont (15, p. 175) was present at a ceremony conducted at this marae.

Another marae named Saeha (rage, jealousy) was said to be situated on the Omoka side of the boundary of Motukohiti, and yet another near the southern point of Motukohiti at Parahatea.

FUNCTION OF THE MARAE

The marae was a social as well as a religious structure. It is traditionally recorded that each of the voyagers, Taruia and Mahuta, built maraes on his arrival in Tongareva. Subsequent maraes are attributed to Turua, Umutoru, and other chiefs. When independent communities developed it became necessary for them to have community maraes. The chief of the community initiated the movement, as he had the control of community labor and could direct the preparation and transport of material to the selected site. The builder of a marae not only served a community need, but he added to his individual prestige and left a monument to his achievement. Though the community did the work, the building of the marae was associated in the traditional records with the chief of the community in a phrase such as *Na Turua i po te marae* (Turua constructed the marae). The word *po* is the technical term used to denote the digging of holes for the pillars and applies generally to the whole structure.

In the Cook Islands some maraes were reserved for religious ceremonials, others for purely social purposes, and others, again, were used for both. Tupou Isaia stated that Tongarevan maraes were used for the following purposes:

1. Hikianga taura (appointment of priests)
2. Pureanga atua (invoking the gods)
3. Kainga honu (eating turtles)
4. Inumanga ni (drinking coconuts)

The first two of these functions are religious and the other two social, but the religious and social functions cannot always be separated. In the eating of turtles (p. 91) a ceremony in which the status of the gods was recognized had to be performed before the turtle could be eaten. In the terms of Western culture, there was grace before meat, but the grace had to be recited at the marae.

Similarly, Lamont and his companions were given coconuts to eat after the religious ceremony on the marae had taken place. In the ceremony attended by Lamont only three coconuts were used, and these were given to the three leading persons in the white community, probably in recognition of their status. It is evident that the eating of coconuts that had figured in the marae ceremony was the Tongarevan ceremonial form of recognizing status. From Tupou Isaia I understood that on occasion regular feasts at which large quantities of nuts were consumed were held.

Invoking the gods (*pureanga atua*) was a necessary part of all marae ceremonials, but occasions probably arose when the religious observance was the sole theme of the ceremony, not influenced by the social factors of eating

turtle and drinking from coconuts. The appointment of priests (*hikianga taura*) is interesting, for no mention is made of a similar ceremony in regard to the *ariki*, or high chiefs. In the Cook Islands and other Polynesian areas the raising (*hikianga*) of the *ariki* is a dignified ceremony and must if possible be performed on a marae associated with that function in the historical past. The failure of Tupou Isaia to mention such a procedure is in keeping with Lamont's account (p. 49) of the election of a successor to the *ariki* Opaka, in which there was feasting, but no marae ceremony. Opaka, however, functioned as high priest and it may be that the *ariki* enjoyed a dual capacity and was only "raised" for the religious duties of his position.

COMPARISONS

The Tongarevan marae is simple in structural plan; the flatness of the ground created no complications. For defining the rectangular inclosure a curb of coral slabs at the front and sides met all requirements. The exact definition of these boundaries and the erection of pillars on the front, sides, and back are constant features of the maraes.

There is a considerable affinity between the maraes of the northern Tuamotuan archipelago described by Seurat (22, pp. 475-484) and those of Tongareva. Both have raised platforms made of limestone slabs, a filling of coral material, and limestone pillars on the back line. However, the raised platform of the Tuamotuan marae faces an open court that is not clearly defined and not embellished with pillars on the front and sides. In the sketches of Tuamotuan maraes reproduced by Emory (4, p. 110) the pillars at the back are irregular in shape. In general, the Tongarevan marae shows more care in definition and better craftsmanship in the preparation of material.

The maraes of Necker Island described by Emory (4) show some affinity with those of Tongareva in that a raised platform faces a rectangular court and the back line of the raised platform is embellished with a row of uprights spaced at intervals. Because the pillars are made of basaltic blocks they are much shorter. In Emory's type marae (4, fig. 25, *a*) it is a coincidence that the back row consists of nine uprights, the average number for Tongareva. The importance attached to placing the highest pillar in the middle is, however, not recognized in Tongareva. The platform of Necker Island extends the full width of the marae—perhaps because it is built on the uneven or sloping ground. To construct a raised platform on sloping ground it is easier to cut a terrace the full width of the inclosure than to excavate the ends. In Tongareva, where the ground is flat, extra work and material would have been involved in extending the platform to the sides of the marae. Labor and material must play a considerable part in modifying

the structural pattern. A median upright on the platform with two others below it on the court floor and pillars set on special sites on the floor are features absent from Tongarevan marae. On the other hand, no uprights are spaced along the front and sides of the Necker Island marae.

Emory (4, p. 709) draws attention to the resemblance between the small Tahitian inland marae and those of Necker Island. The large raised platform of the Taputapu-atea marae in Raiatea shows the same technique of construction as those of Tongareva. Huge limestone slabs rising over 8 feet above the ground have been set on edge to form a rectangular inclosure which has been filled in to a height of 8 feet with coral boulders and rocks. Some of the limestone slabs have fallen down, revealing another row of limestone slabs within, but of less height. It is thus evident that the Taputapu-atean platform was originally smaller and lower. Doubtless, as Taputapu-atea increased in fame the larger limestone slabs were erected on the outer margins of the original structure, and the inclosure thus enlarged and deepened was filled in to the present height. In spite of its size and fame, the structural technique and pattern is that of the simple, low platforms of Tongareva.

It is apparent that an ancient marae structural pattern consisted of an open court with a raised platform at the end, formed of limestone slabs set on end, and filled in with loose material. At the back, tall uprights that may have had some religious significance, or may have been purely ornamental, were set up. On Tongareva progress has proceeded in the direction of defining the boundaries of the court with curbstones and extending the stone uprights to all four boundaries. I consider the Tongarevan pillars purely ornamental, placed there to add dignity and impressiveness to the structure. Even today, when Polynesian communities wish to improve the appearance of their villages they erect stones at intervals along the sides of the village road. Their ancestors did the same with their marae. The shaping of the pillars was a further advance by the Tongarevans. Emory (4, p. 110) draws attention to a pillar in the Tuamotuan marae of Ramapohia that is cut to represent the human form and is called *ofai tiki* (representative of the deity). In Tongareva two similar pillars, but much more carefully cut, appear to be wholly ornamental. (See fig. 22, c, 2, 3.) Both are on the left boundary of the Rakahanga marae, not on the back line where the priests officiated when in direct communion with the deity. The inhabitants do not know whether or not they represented gods or ancestors.

Detached and special stones, whether in the court or on the boundaries, were significant in the marae ceremonies which have been dissipated by Christianity.

STONE CIRCLES

Two roughly circular arrangements of limestone pillars were seen. No curbstones define the spaces between the pillars. Nothing is known of their use, and no names are applied to them by the inhabitants. They are not regarded as marae and have not been used as cemeteries.

One of these circles is on the island of Naue, on the lagoon side of the Mahue marae. Ten pillars of medium size are arranged roughly in a circle about 37 feet in diameter. Within the inclosure I found a piece of pearl shell in the preliminary stage of shaping to form a fishhook for catching *ruhi*. (See figure 41, *a*.)

The other structure is on the lagoon side of Atutahi about 120 yards from the Rupe-tangi-rekareka marae. It consists of eight limestone pillars with long spaces between some of them. Other pillars have probably been removed. The inclosed space is more elliptical than circular; the difference between the two cross diameters is 24 feet. (See figure 41, *b*.)

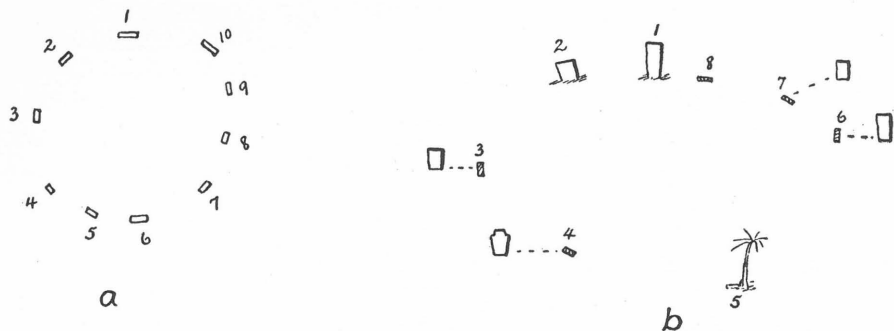


FIGURE 41. Stone circle and ellipse. *a*, circle, Maue, pillars under 2 feet wide and about 3 feet high: 10, large broken pillar. Diameters from points 1 to 6, 35 feet; from 2 to 7, 36 feet; from 4 to 10, 40 feet. *b*, ellipse, Atutahi: 1, tall standing pillar; 2, standing pillar; 3-8, pillars broken, but bases still imbedded in ground indicate original sites; 4, pillar with notch 5 inches deep at each top corner. Bottom width of pillars ranges from 1 foot 4 inches to 3 feet; top width ranges from 1 foot 6 inches to 3 feet; height ranges from 3 feet 4 inches to 6 feet 3 inches. Diameter between points 1 and 5, 44 feet; between points 3 and 6, 68 feet.

These circular arrangements of upright pillars are interesting in view of erroneous statements in anthropological literature that stone circles of Stonehenge type are present in Tongareva. The error originated in a carelessly worded description by Lamont (15, p. 111) and has been perpetuated by Westropp (30, p. 56), Smith (23, p. 91), Perry (20, p. 23). In describing the Rakahanga marae Lamont says: "I suddenly came on an open

space of some hundred yards square. It was encircled by tall, flat stones, some six feet in height, . . . a sort of 'Stonehenge' in a small way."

In quoting Lamont, Westropp seemingly stressed the word "encircled," for he speaks of "a stone circle in one of the Penrhyn Islands like the sepulchral circle of Stonehenge and the stone circles of Khassia [and] Algiers." As a matter of fact, the marae described by Lamont is rectangular, not circular, and its area is much less than a hundred yards square. (See p. 172.) Perry quoted Westropp with reference to the existence of a "megalithic stone circle" and came to the conclusion that sun worship was practised on Tongareva by an archaic civilization. My discovery in 1928 of circular arrangements of stones on the islands of Atutahi and Naue does not alter the fact that both Smith and Perry were misled by Westropp's erroneous, though natural, interpretation of Lamont's word, "encircled."

The lack of knowledge regarding the circles does not necessarily imply that the structures were built by a hypothetical archaic civilization for sun worship, as the natives are equally ignorant of the ceremonial uses of parts of the maraes which their own ancestors constructed. If an extinct people built the circles, they must have built them before the marae builders arrived. The circles, however, would not have survived through 17 generations of Polynesian occupation. The stones are of the same type as those used as marae pillars, and as sun worship was unknown to the Tongarevans, the stones of ancient structure would have been used in building the present maraes. The very presence of the circles may be taken as evidence that the inclosures served some social purpose in the period immediately preceding missionary influence. As the pillars, including the bilateral notched pillar in the Atutahi ellipse, are trimmed in the same way as the marae pillars, they must have been made by the ancestors of the present population. They are, in fact, extra marae pillars that have been set up near the marae for some subsidiary purpose. The inclosures were evidently gathering places on the way to or from the maraes. What purpose could they have served? After stating that the women and children accompanied them but stopped short of the marae, which they could not enter, Lamont (15, p. 123) goes on to say that after the marae ceremony the men marched off to a clear space near the beach where the women were congregated. Here the "shukai" (*saka*) dance was performed and the wailing ceremony enacted. This was an accessory ceremony performed outside the marae that needed a clear space not far from the marae itself. A function for the circular or elliptical inclosures can thus be found. No stone circle was observed near the Raka-hanga marae, and it is evident from Lamont's description that the accessory ceremony took place in a clear space not encircled by pillars. Other island communities, however, may have introduced some elaboration into the spaces.

It is significant that the two circles seen are on the southern side of the atoll, and that in Lamont's time both Naue and Atutahi were under the influence of Te Puka. Lamont (15, p. 144) states that when the Te Pukan people visited Mangarongaro, after the wailing and *saka*, one or two other dances were performed by the men in a circle, with their hands joined. The Te Pukan people, accustomed to forming a circle for a particular dance, may have arranged pillars in a circle to embellish the clear space where such ceremonial dances were held. The absence of a circle on Te Puka itself may be attributed to the influence of the modern village, which required more pillars for its larger cemetery, and which completely demolished the ancient marae of Punaruku. I would submit the theory, therefore, that the circular inclosures on Naue and Atutahi were congregating places for both men and women where ceremonies subsidiary and complementary to the marae ceremony took place. These circular inclosures were not tapu like the maraes and were probably ordinary gathering places, hence the presence of fishhooks in course of manufacture in the Naue inclosure. The distribution would also indicate that the method of embellishing the meeting place was local and confined to the southern part of the atoll, where circular dances were in vogue.

GRAVES

The ordinary graves seen in the marae inclosures are rectangular spaces about 6 feet long by 3 feet wide, defined by small coral blocks of *karaea* from 6 to 9 inches high set on edge after the manner of curbstones. The inclosure is covered with a layer of coral gravel. (See fig. 42, *a*.)

The large graves are made of rectangular cut slabs of limestone set in the ground on edge to form a rectangular inclosure on the same plan as the small graves. They range in length from about 8 to 22 feet and in width from 5 to 6 feet. On most graves a tall slab is stuck upright at one end like a marae pillar. A grave in the Pukanui marae and one near the Raka-hanga marae illustrate the type. (See fig. 42, *b*, *c*.)

A graveyard at Moana-toto on Motukohiti is said to be a burial marae. One end, 48 feet long, is defined by curbstones of coral slabs. A curbed line 51 feet long is at right angles to one end of the first line, and a shorter curbed line meets the other end. The other parts of the boundaries can not be distinguished. No pillars or breaks are associated with the curbed lines. The graves are at the undefined end of the inclosure. One grave, 18 feet 9 inches in length and 5 feet 11 inches in width, has a broken pillar at one end. Another grave has an impressive head pillar and a flanged slab. (See fig. 43.)

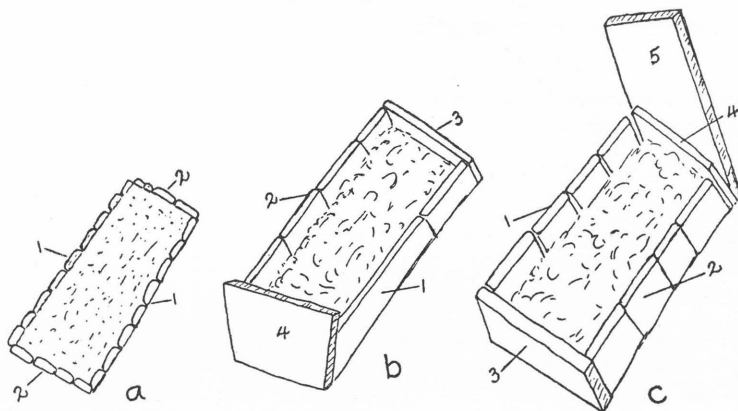


FIGURE 42. Graves. *a*, small grave in marae inclosure: 1, 1, sides, 6 feet long; 2, 2, ends, 3 feet wide. *b*, grave, Te Pukanui marae, of limestone slabs about 6 inches thick, with squared shoulders like marae pillars, and laid on edge with long axes horizontal; sides, 8 feet 8 inches long and 1 foot 5 inches high: 1, 2, right and left sides; 3, foot of grave, closed in by slab 5 feet wide and of same height as sides; 4, head slab, 3 feet 4 inches wide at bottom, 3 feet 10 inches wide at top, and 2 feet 8 inches high. Inclosure is not quite rectangular but is narrowed in toward head. *c*, grave of limestone slabs near Rakahanga marae: 1, 2, sides 12 feet long and 2 feet 2 inches high; 3, foot overlapping sides and closed by slab 5 feet 1 inch wide and of same height as sides; 4, head slab 4 feet 7 inches wide and same height as sides, does not overlap sides; 5, pillar 4 feet 7 inches high, erected on side of head slab (4), which it overlaps at bottom—pillar narrows to 4 feet at top.

The largest grave seen in Tongareva is at Tinimanu. It is 22 feet long and 6 feet wide. The sides at the foot are 2 feet 11 inches high. Each side is composed of seven slabs. The head pillar is 5 feet 4 inches high. The foot is composed of two slabs, one of which has a well-cut square knob on its outer top corner. (See fig. 43, *c*.)

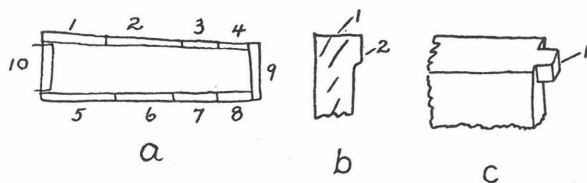


FIGURE 43. Graves at Moana-toto and Tinimanu. *a*, Moana-toto grave, sides 16 feet 9 inches long and composed of slabs 2 feet 2 inches high: 1-4, slabs on right, respectively 5 feet 7 inches, 6 feet 3 inches, 2 feet 5 inches, and 2 feet 6 inches long; 5-8, slabs on left, 6 feet 4 inches, 4 feet 6 inches, 3 feet 6 inches, and 2 feet 5 inches long; 9, end slab at foot, 4 feet 5 inches wide; 10, head pillar 3 feet 9 inches wide at bottom, 3 feet 11 inches wide at top, and 7 feet 10 inches high. *b*, side slab of Moana-toto grave (*a*, 5): 1, upper edge 6.5 inches thick; 2, outer flange formed by cutting in at downward slant for 0.5 inches along line 2 inches below upper outer edge of slab, continuous along upper edge of slab. *c*, grave at Tinimanu: 1, small knobbed flange or squared projection on right upper corner of slab 10 inches thick; knob is 2.5 inches deep and 4 inches thick, 3 inches of material having been removed on either side of knob.

The question arises as to whether these graves conform to an ancient pattern or have been influenced by the culture introduced by Christian missionaries. The technique of forming an inclosure by setting slabs vertically on edge is undoubtedly ancient and has followed the principle observed in the small inclosures made with low coral slabs of the curbstone type. Dead bodies were originally exposed on the maraes in such small inclosures and were finally covered over with coral gravel. The system of disposal was thus not by digging a pit in which to conceal the remains, but by placing the remains on the surface and covering them over with coral gravel. To prevent the dispersal of the covering, coral slabs were set on edge to inclose the body in much the same way as they were used to define the boundaries of a house to keep the floor gravel within bounds. For the burial of important persons the small coral slabs gave place to larger limestone slabs. The disintegrating skulls and bones were evidently collected and placed in smaller receptacles, such as that seen on the Rauhara marae (p. 165), where two skulls with bones were deposited in an inclosure averaging 5 feet by 3 feet 8 inches. The larger graves that reach a length as great as 22 feet were used as family tombs in which successive burials took place in different parts and at succeeding levels. The bones seen in the tombs were covered by a thin layer of gravel and some were freely exposed. In no grave did the height of the coral gravel within the inclosure reach the top of the walls.

The Tongarevans themselves held that the form of grave inclosure was of ancient pattern. That some of the graves near the Rakahanga marae are of premissionary date is evidenced by the fact that Lamont (15, p. 112) alludes to them:

Through the open spaces I could observe several more stones of the same kind, some lying horizontally supported by others, not unlike the cromlechs or Druid temples of Ireland, but more regular in form, and evidently intended for tombs.

Lamont's details are not always correct, as he allowed his imagination to supplement his memory. I take it that the stones "lying horizontally" are the long slabs set on edge to form the sides of the inclosure and that "supported by others" refers to the stones set on end to form head pillars. In none of the graves at Rakahanga or other parts are there any slabs laid flat horizontally upon supporting stones in the form of a cromlech. Lamont's use of the word "supported" is therefore as incorrect as his use of "enclircled" to describe the pillars set at intervals on the four boundaries of a rectangular inclosure. Lamont (15, p. 235) also states that in the center of the Te Pukan marae (Punaruku) were several tombs of great chiefs, including Mahuta. He remarks: "The large stones forming these structures would

not have made contemptible monuments for some of our own illustrious dead." The pattern of the rectangular walled grave formed of limestone slabs may thus be accepted as ancient. The erection of a pillar at one end I regard as being derived not from the introduced idea of a European headstone, but from the native culture, which embellished its marae inclosure with limestone pillars. Also, there is little doubt that it was the upright pillar that Lamont meant when he said that the stones lying horizontally were supported by others. This use of the plural "others" must be interpreted as applying to the number of graves observed and not to an individual grave. The marae of Rakahanga has undergone little change except that some of the pillars have fallen, so the graves in that locality must be in the same condition as when they were seen by Lamont. Knowing the attitude of the people in regard to the tombs of their dead, it is safe to assert that they were not likely to remove slabs from the tombs at any time, and even less so while pillars that could be utilized for other purposes without causing offence still remained on the adjacent marae.

The acceptance of Christianity removed the awe and reverence with which the former religious structures were regarded. All religions have derived elements from the previous religions which they displaced. In Tongareva the stone material of the marae was utilized in the construction of churches. The burial function associated with the marae was continued by the churchyards which were formed beside the new church. The concentration of the population into the village around the church led also to the need for more graves on the one site. Instead of preparing new material from the limestone strata the pillars from the now functionless maraes were used with impunity to erect new graves. Some of these were formed in the old pattern and it is probable that some of the larger graves were made of the slabs available from the marae. The metal implements of the new culture, however, brought about earth burial in pits. Because of the lack of timber for making coffins the pits were lined with limestone slabs from the marae, the body was placed within, another slab was laid flat above as a cover, and the earth was heaped upon it. The body thus rested in a stone coffin, or true cromlech, which was buried, however, below the earth surface. I was assured that many of the large pillars that belonged to the Punaruku marae at Te Puka were so used. It is recorded as a guide for any expedition which might, in the years to come, conduct excavations on the site of this ancient marae and find true cromlechs with human bones that this form of interment was directly due to the influence of Western culture, which introduced metal tools, grave digging, and coffins for the dead.

ADZES

As suitable stone was not available adzes (*toki*) were made of *Tridacna* shell. The handle of a hafted adz in Bernice P. Bishop Museum (figs. 44-47) consists of two separate pieces, the foot and the shaft.

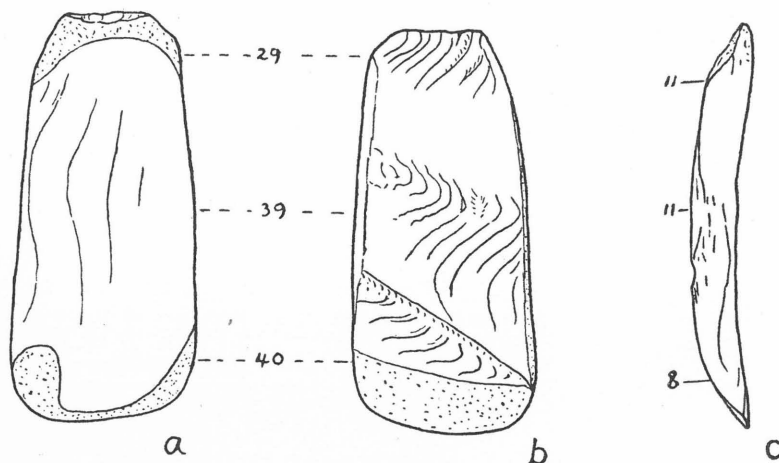


FIGURE 44. Adz of *Tridacna* shell: width of the shell, and thickness in millimeters. *a*, front formed of inner nacreous surface of shell, concave longitudinally and transversely, dotted parts of butt and cutting edge ground down to flatten concavity of shell, cutting edge curved, and grinding forms straight surface in front; *b*, back, showing rough external surface of shell with some grinding to remove black external layer—dotted part near lower edge marks forward grinding to form short cutting edge; *c*, right side, showing longitudinal curve with concavity in front, thickness of 11 mm. due to the transverse curve, with actual thickness of shell in thicker parts ranging from 7 to 8 mm. Length, 90 mm.

The foot of the handle has an upper end, the heel, and a lower end, the toe. The foot is rounded in section except at the back of the upper half, where it is cut flat to fit against the shaft. The toe is grooved in front to form a bed for the butt of the adz. The separate foot of the Tongarevan adz should not be confused with the intermediate movable socket used in adzes in some other regions. The groove in the foot is shaped to fit the butt end of the adz to be hafted. After the adz is fitted in position a wide strip of lauhala is wrapped with transverse turns around the toe so as to cover the adz butt as it lies in the groove. Three-ply braid sennit is used for the lashing, which consists of transverse turns. Scales of the *maratea* fish were used to cover the front of the adz butt, the lowest scale projecting down over about half of the front of the projecting blade. The fish scale took the place of such material as the stipule of the coconut leaf

(*kaka*), which is used in some areas to protect the lower turns of the lashing from fraying against the wood that was being worked. The lauhala wrapping shown in figure 46 consists of the anterior surface of the leaf, which has been dyed red. It is evidently the same material as that used in overlaid plaiting to introduce color design into mats and satchels. The use of this material shows that the hafting cannot be very old. The use of the fish scales is unique, but I do not know whether or not the technique dates back to pre-European times.

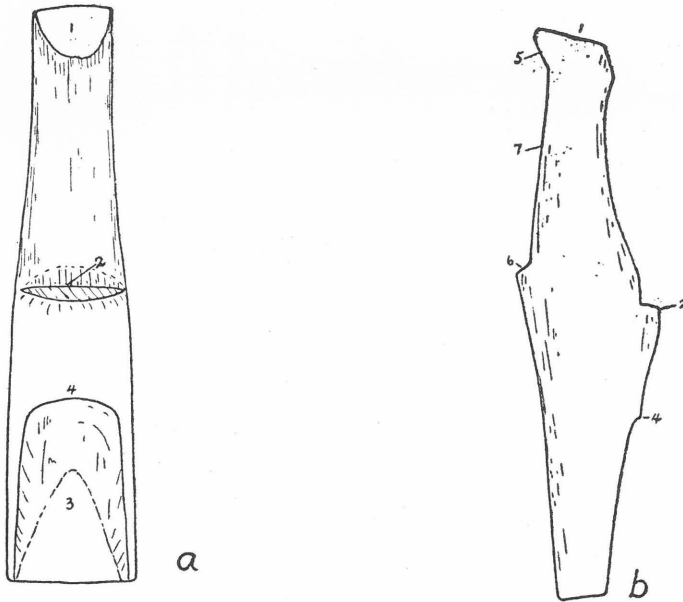


FIGURE 45. Separate foot of Tongarevan adz handle. *a*, front: 1, upper surface of heel, sloped forward and downward, 24 mm. wide by 23 mm. from front to back, rounded transversely and increasing in width; 2, transverse ridge, 37 mm. wide—ridge and part below form toe, which is round and increases slightly in width to 40 mm. at lower end; 3, hollowed groove 35 mm. wide at lower end of foot, where it forms bed for adz; 4, curved upper end of groove, 30 mm. wide; length of groove, 57 mm. *b*, right side: 2, median ridge, foot 43 mm. thick; 4, top of groove, foot 23 mm. thick; 5, narrowest part, 21 mm.; lower end, 15 mm.; 5-6, foot cut forward on posterior surface to form flat surface; 7, flat surface against which shaft fits. Below angle at 6 the foot is circular in section except for the part hollowed out for the adz.

The shaft of the handle is made of *ngangie* and is shaped at its distal end to fit the flat surface on the back of the foot, with which it forms an angle of about 50 degrees (fig. 47). The lashing that binds the shaft to the foot is not sufficiently intact to permit of accurate reproduction. It has been cut, and the part over the foot has been lost. From the remains on

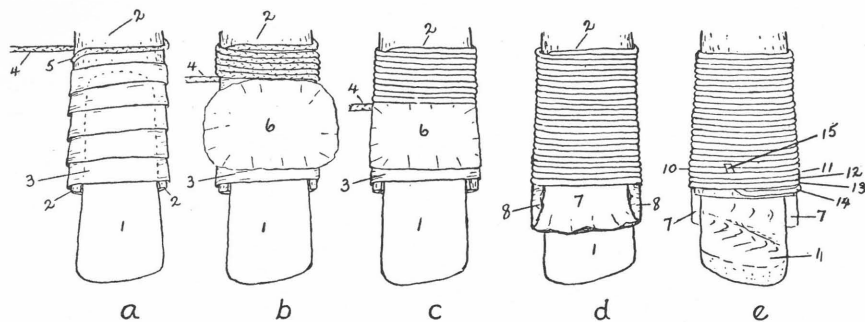


FIGURE 46. Lashing adz to detached foot: *a-d*, front view; *e*, back view. *a*, adz (1) is fitted to groove in toe (2); a strip of anterior layer of lauhala (3) is placed with one end resting on front of adz; end is covered by transverse turn of material; by series of ascending turns adz butt is covered; free end of material split, and one part, after being crossed under other, is reversed in direction; the two ends are brought together at back and tied with reef knot; lashing braid (4) is placed with one end (5) against left side of foot, about 10 mm. above level of upper end of toe groove; end (5) is directed obliquely downwards; transverse horizontal turn is made toward right; braid (4) is brought around back to left. *b*, braid makes second transverse turn around toe close below first turn and crosses over end (*a*, 5), thus fixing commencement end of braid; transverse turns are continued in downward direction until six turns have been made; a *maratea* fish scale (6), 62 mm. wide and 45 mm. deep, is placed in position with its upper edge against last lashing turn. *c*, transverse lashing is continued for four turns to fix scale and bend its sides around. *d*, second scale is added in similar manner to first and fixed by next four turns of lashing; a third scale (7) is placed in position and its two sides (8, 8) doubled in toward front—this scale is larger than the other two, being 72 mm. wide and 50 mm. deep; lashing turns are continued to lower end of toe; the lower part of scale (7) thus covers front of the adz blade for about half its length. *e*, when about 3 turns will reach lower edge of toe, left thumb is placed vertically on back of toe and the last three lashing turns (11, 12, 13) are made over it; thumb is removed but at same time, left forefinger is placed over last firm turn (10) to keep lashing taut; free end of braid completes turn (14) to back, and is then pushed up from below beneath the three last turns rendered loose and patent by removal of thumb; loose turns are drawn taut, commencing with upper one (11) and finishing with lowest (13); slack, now all in turn (14), is removed by pulling end (15), which tautens up turn (14) and fixes braid; braid is cut off.

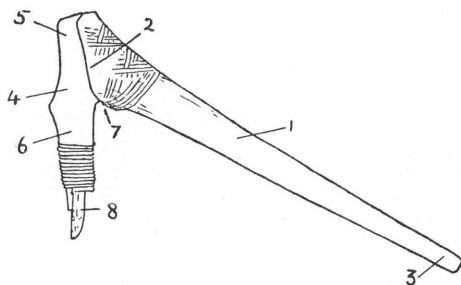


FIGURE 47. Adz handle: 1, shaft, 17.5 inches long; 2, distal end of shaft, 3.3 inches in oblique height, 1.2 inches across widest middle part, fits against foot; 3, proximal end of shaft, diminishes to 0.8 by 0.7 inches in cross section; 4, foot; 5, upper end of foot, and corresponding part of shaft forms heel; 6, toe; 7, toe angle formed by shaft and foot junction; 8, adz attached to toe.

the shaft it is evident that figure-of-eight turns had been made around the upper heel end and around the shaft below the foot junction so that the crossing over the front of the foot formed an ornamental lozenge pattern.

The shell adzes were used in felling timber, building houses and canoes, shaping bowls, and making weapons. Tupou Isaia informed me that pieces of coral also were used in cutting down trees. It is probable that the shell adz was used also in squaring the flanges and notches in the shaping of the marae pillars.

CANOES

CONSTRUCTION

The Tongarevan canoe has been supplanted completely by the large sailing boats used in connection with diving for pearl shell and the small outrigger canoes made of sawed planks after the modern Manihiki design. Search failed to locate an old canoe stated to be on Te Puka. The wood of some of the old canoes has been used for house piles in Omoka. Those available were examined, and a certain amount of information was derived from them. A few notes on the parts of a canoe were obtained from the old men, but without an actual canoe it has been impossible to determine how the different planks were shaped. Choris (3, p. 33) figured a canoe with five outrigger booms and states that the "piroques" were made of several pieces of wood bound together and having outriggers (fig. 48).

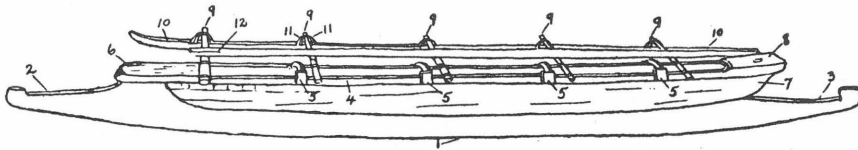


FIGURE 48. Tongarevan canoe (after Choris): 1, keel (*oa*); 2, stern (*vero*); 3, bow, (*isu*); 4, gunwale (*huatanga*); 5, gunwale braces (*manu*); 6, steersman's seat; 7, raised breakwater; 8, lookout's seat; 9, outrigger booms (*kiato*); 10, outrigger float (*ama*); 11, float connecting pegs (*tutaki*); 12, longitudinal spar (*torutoru ama*) and spears.

Kotzebue (14, pp. 217, 219) counted about 36 canoes which came out to his ship. Each contained 7 to 13 people. He says:

Their boats are made of several pieces of wood well jointed together with cocoa-bast cords. Both ends are rounded off, above and below the water, furnished with a projecting spar. They have an outrigger on which their arms are secured. . . . We did not wait for a boat, which approached us under full sail, from a distant island of the group.

Wilkes (31, vol. 4, pp. 277, 279) says that the canoes each contained from 7 to 16 men. They were made of dark-colored wood, with a light out-

rigger, and were without sails. They were ingeniously constructed of pieces sewn together with sennit, but they leaked so badly as to necessitate constant bailing. They were the largest canoes constructed on a low island that the Wilkes expedition saw.

Lamont (15) gives more detail that will be used to eke out the scanty information obtained locally.

The wood used in making the hull and outrigger of the Tongarevan canoe was *tou* (*Cordia subcordata*). Suitable trees about 3 feet in diameter were felled with shell adzes or with large coral heads so split that the inner part furnished a handhold, and the outer, rough part with its sharp circular projections served as a blade that, when struck against the fairly soft wood, nibbled out the scarf. The felled trunk was then seasoned. I understood from my informants that the *tou* was seasoned by burying it in the ground, and that another timber tree called *hano* (*Guetardia speciosa*) was seasoned by soaking it in the lagoon. Lamont (15, p. 151), however, states that the *tou* (which he spells *to*) was also rolled into a shallow part of the lagoon, where it was subjected to alternate dampness and heat as the tide flowed in and out. After seasoning by this method the log could be split more readily into the planks used in canoe building. As the supply of timber was limited, the hollowing out of a log into a single dug-out was regarded as wasteful, especially as the larger canoes had to be built up because the timber was not big enough to provide canoes of the dug-out pattern. The use of plank canoes on low islands was thus largely influenced by economic environment.

The lashing material was sennit braid (*kaha*). Adzes of *Tridacna* shell were used to split and shape the planks. The edges were marked with a mixture of charcoal and water when the planks were fitted together. Shells with the apical whorls running to a sharp point were used for boring holes. A number of these, picked up near old house sites, have been identified by C. Montague Cooke, Jr., as *Terebra maculata*, *Terebra crenulata* and *Mitra stictica*. Lamont (15, p. 151) says that a piece of sharp stone was used in addition to shell, "assisted by a sharp pointed cocoa-nut stick." Coconut husk was used in calking planks and plugging lashing holes. A vegetable substance (*kana*) growing in flat, rounded masses on the coral heads in the lagoon was dried and used like sandpaper for smoothing down the outer side of the planks.

The shape of the canoe as drawn by Choris (3, pl. 12) is shown in figure 48. The native names obtained locally are applied to it. It resembles a Puka-puka canoe in Bernice P. Bishop Museum, and the hull is not unlike the Nanumea type of Ellice Islands canoe figured by Kennedy (13, fig. 59). It is characterized by a long upward slope of the keel toward the bow and stern, each of which terminates in a solid short upward projection.

PARTS OF THE CANOE

The keel (*oa*) of the Tongarevan canoe is a long narrow piece of wood, convex on the under surface and concave on the upper. Lamont (15, p. 151) states that the keel was about a foot wide. A section of a keel used as a house pile is much smaller than this, but it probably came from near one end. (See fig. 49.) In this piece no groove had been cut on the outer surface at the edges for a covering seam batten, though Pa of Omoka stated that it was usual for all seams to be so covered.

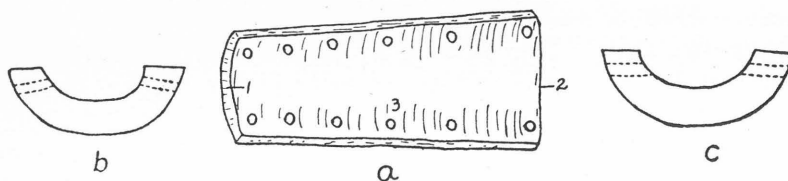


FIGURE 49. Canoe keel, Omoka: *a*, section above ground, 17 inches long, about 2 inches thick; *b*, cross section of narrow end, upper concavity 1.5 inches deep; *c*, cross section of wide end, concavity 2 inches deep. 1, narrow end of upper concave surface, 5.5 inches wide; 2, wide end, 6.5 inches wide; 3, holes about 0.5 inches in diameter bored through keel about 0.5 inches from edge on both sides. Spacing between holes increases from 2 inches at narrow end to 4.5 inches at wide end.

It was not ascertained exactly how far the keel extended. Lamont (15, p. 151) states: "The keel slopes gradually up at either end till it rises above water-mark, terminating in a solid point called the *isu*, or nose." The "*isu*" is the bow, which Pa maintains included the upward projection and was formed of two pieces. Judging from the Pukapuka and Ellice Island canoes, Pa's "two pieces" probably meant that the keel with the upward projection formed one part of the bow and a bow cover formed the other. Lamont's observation would thus be correct. The term "*oa*," as applied to the keel by Pa, is a misplacement in dialect, for throughout Polynesia *oa* is applied to the raised gunwale.

Pa maintained that there were three tiers of hull pieces above the keel, the order from below being the *kape*, *rau-toru* and *hutatanga* (gunwale). Sections of the hull pieces now in use as house piles have the outer surface at both side edges cut down to form batten grooves. (See fig. 50.)

In another hull plank the batten groove was 1.5 inches wide. The hull plank shown in figure 50 belongs to the second or third tier of the hull and must be either a *kape* or *rautoru*. Pa could not distinguish them as both these tiers have batten grooves on the upper and lower edges.

The hull pieces were fitted to the keel edges, which had been smeared with a thick solution of charcoal and water. The hull piece was removed, and the irregular parts that bore the impression of color were trimmed with the *adz*.

The fittings were repeated until the impression was uniform. The hull pieces were fitted to each other at the sides and ends in the same manner. The batten grooves were then cut on the contiguous horizontal edges, and paired holes were made through the planks, clear of the grooves. Before lashing, coconut husk, soaked in water and beaten, was spread over the upper edge of the lower piece to serve as calking.

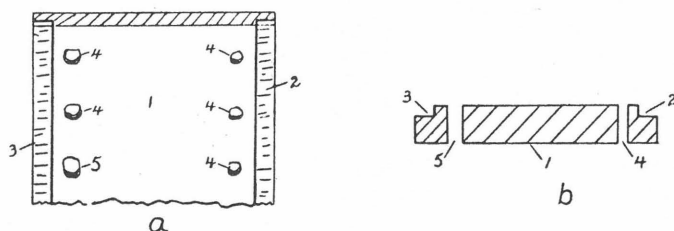


FIGURE 50. Hull plank in Omoka house pile. *a*, end section; *b*, cross section: 1, plank, 13.5 inches wide and 2 inches thick; 2, 3, side edges, grooved on outer surface for the covering battens; 4, lashing holes cut through plank about 0.5 inches to inner side of batten groove and spaced 3 inches apart—holes on right edge evenly made with cross diameters of 0.5 inches, holes on left much larger; 5, hole on left, cross diameters, 0.75 and 1 inches, perhaps cut with some form of chisel.

The seam batten (*takatua*), trimmed to a width of 2 to 3 inches to fit the groove prepared for it, was placed in position. The lashings were made through the paired holes with sennit braid to draw the edges together and at the same time to bind the seam batten closely over the outer side of the seam. Pa maintained that four turns were made through each pair of holes and that the braid was then carried on to the next pair of holes. This continuous form of lashing is distinct from the interrupted form of lashing used with the plank canoes of Samoa. The right-through method of lashing with the turns showing both inside and outside the hull offers a marked contrast to the Samoan

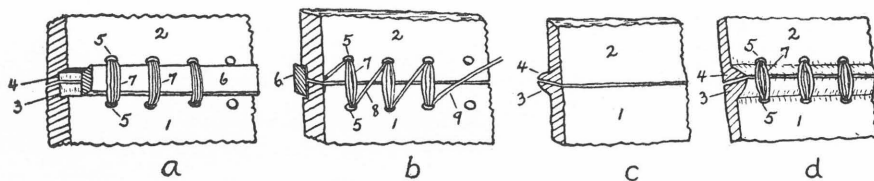


FIGURE 51. Hull lashings of plank canoes. *a*, Tongareva, outside view; *b*, Tongareva, inside view; *c*, Samoa, outside view; *d*, Samoa, inside view: 1, lower hull piece, or keel; 2, upper piece; 3, 4 (*a*), wide groove formed by upper and lower pieces, and (*c*, *d*), flanges of upper and lower pieces on inner side of end section; 5, 5, paired holes; 6, batten placed in groove; 7, lashing; 8, braid carried obliquely from lower hole to upper hole of next pair to repeat lashing of four turns on outside; 9, free braid going up to next pair of holes. Samoan lashings do not show on outside, and lashing of each pair of holes is fixed and braid cut so that they show as interrupted lashings.

method through raised inside flanges, in which the lashing turns show only on the inside of the hull. (See figs. 51 and 52.)

The join is termed *hono*, and the lashing holes receive the general name of *rua* (hole). The lashing is termed *hau*, and the phrase for lashing with sennit is "ka hau te kaha." When the lashing was complete, the holes were plugged with beaten husk.

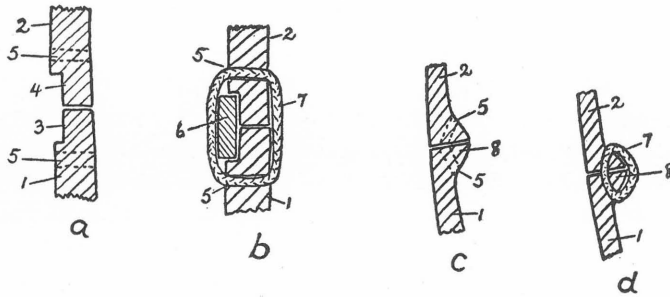


FIGURE 52. Section of join between two planks with seam batten in position. *a, b*, Tongareva; *c, d*, Samoa: 1, lower piece; 2, upper piece; 3, 4, Tongarevan batten grooves, each 1.5 inches wide and 0.5 inches deep; 5, holes for lashing; 6, Tongarevan seam batten, 3 inches wide and an inch or more in thickness; 7, lashing; 8, Samoan flange. Samoan lashing does not show outside.

The gunwale (*huatanga*) forming the top sides is characterized by an inward projection from the top edge forming a broad ledge. This served as a seat for the paddlers, but there are special seats fore and aft (fig. 48). A section of a gunwale, also used as a house pile, is shown in figure 53.

Characteristic of the Tongarevan canoe is the wooden brace (*manu*) between the gunwales. The braces consist of two vertical limbs with a connecting horizontal arch, all cut from one piece of wood. The limbs fit against the opposite sides of the gunwales to which they are lashed. Choris shows four in the canoe with five outrigger booms. (See fig. 48.) The limbs are a

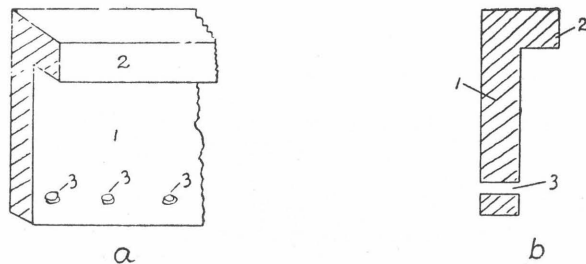


FIGURE 53. Gunwale (*huatanga*), vertical part 11 inches deep on outer side, upper surface of gunwale 4 inches wide, both parts 2 inches thick, and horizontal ledge projecting inward 2 inches from side. *a*, inside view; *b*, cross section: 1, vertical part; 2, inward projecting ledge; 3, holes 3 inches apart and bored through 1 inch from lower edge.

little aft of the four booms, counting from the bow, the aft boom being without one, as it abuts directly against the steersman's seat on the stern cover. My informants termed them *manu* and said they formed the curved back of the seat. From their relative position to the booms, it may be that the booms were used as seats and that the curved horizontal limb of the *manu* was at the back of the paddlers. The *manu* served as thwarts to brace the gunwales together and to resist both outward and inward strain. Choris figures them as if the vertical limbs were lashed to the outboard side of the gunwales, but sketches done quickly without subsequent checking are, at the best, unreliable for technological details; they may confirm information subsequently collected in the field, but they cannot decide a question which is in doubt. In all model canoes from Manihiki the vertical limbs of the similarly shaped *manu* are fitted to the inboard side of the gunwales and lashed to them in that position. In the canoes of Tongareva and Manihiki the convex curve of the connecting arch is directed upward. In Hawaii a similar brace is used, but with the convex curve directed down.

The stern piece (*vero*) was, from Pa's description, in one piece with the keel, and probably solid. The upward projection at the aft end was termed the *maramara* by Pa. The steersman's seat mentioned by Lamont (15, p. 152), shown in figure 48, 2, appears to be a widening out of the stern piece just behind the aft boom.

The bow piece (*isu*) has the same upward projection as the stern piece. Choris (fig. 48, 7) shows an upward projection of the fore part of the hull where it meets the bow piece. This corresponds to the wave guard of the Pukapuka and Ellice Islands canoes. It is probably this raised part that forms the second element of the bow piece that Pa stated was formed of two pieces, as against the one piece of the stern. The part aft of the wave guard is expanded into a seat for the lookout, whose duty it is to direct the steersman when a coral head or shoal is approached.

Lozenge-shaped projections, also termed *maramara* by Pa, were made on the upper surface of the bow and stern pieces and are distinct from the markedly raised projections at the fore and aft ends, respectively, of the bow and stern pieces. There are two on the bow, and four arranged in two pairs on the stern.

The outrigger is placed on the port side. The outrigger booms (*kiato*) are made of *tou* wood and range in number from 3 to 5, according to the size of the canoe. They are lashed to both gunwales with sennit braid, the braid passing through holes bored through the gunwale below the site of the boom. The booms are straight and project beyond the port side of the canoe (fig. 48, 9).

The float (*ama*) of *tou* wood is a long spar which Choris shows to be about the same length as the raised part of the hull. (See fig. 48, 10.) He

shows the aft end with an upward curve, but no mention of this was made by Pa. The float projects well back behind the aft boom and is not cut off close behind it, as it is in Samoan canoes.

The attachment between the straight booms and the float by means of four connecting pegs (*tutuki*) to each boom is indirect, but how the pegs were lashed was not ascertained. Pa stated that a suspensory cord (*ua*) was used as an additional connection between the boom and float.

A longitudinal spar (*torutoru ama*) is lashed over the outer ends of the booms and served as a rest for the paddles. The spar is shown in figure 48, 12, but the extra width is probably due to spears, which were also carried in this way across the booms.

In size the canoes ranged from the ordinary fishing canoes with 3 booms to the large war canoes with 5 booms. The largest canoe seen by the early navigators carried 16 men, but it is possible that none of the large war canoes went out to the ships in the short time they were in the Tongarevan waters. The war canoes were drawn up under shelters and were refitted for launching before warlike expeditions. The news that a particular island was refitting its war canoes was equivalent to a declaration of war and put enemies upon guard. Lamont (15, p. 195) states that a chief, whom he names O Pai Tangata, selected 30 warriors and launched his war canoe. As Lamont accompanied the party and only the one canoe was used, he evidently means that the war canoe carried the 30 men. He speaks (15, p. 346) of three war canoes containing 60 men on another occasion.

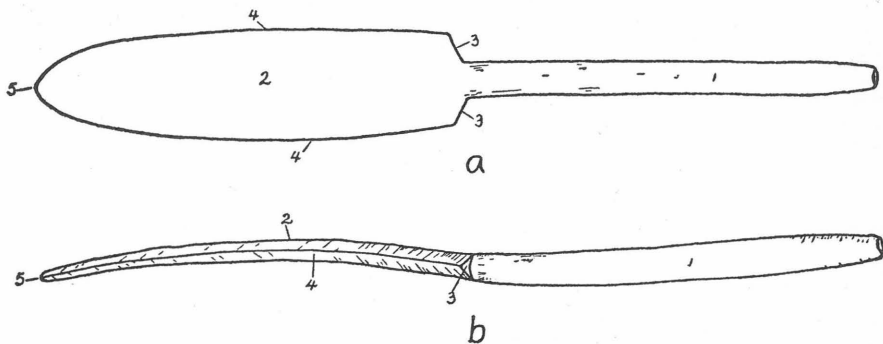


FIGURE 54. Model paddle (*hoe*). *a*, surface toward paddler (front); *b*, side view; 1, handle, round in section, approximately same length as blade, with slight antero-posterior curve and convexity at front (handle may be proportionately too thick in model); 2, blade; 3, straight oblique shoulders of blade; 4, sharp side edges, expanding but slightly from shoulders; 5, blunt end, with no thickening or reinforcing projections.

The paddle (*hoe*) was made of *tou*. A small model made for me has a long curved blade. (See fig. 54.) Lamont (15, p. 152) states: "The paddle is long, the blade narrow and curved." The curved blade marks a difference

from the long, narrow, straight blades of near-by Manihiki. In the shallow water between the inner lagoon reef and the shore the canoes are poled as well as paddled.

The mast is termed *tira* and the sail, *ra*. Kotzebue (14, p. 219) states that he saw a canoe approaching from a distant island under full sail, but he did not wait for it. It is curious that the only sail mentioned by Lamont (15, pp. 242-243) was a makeshift one of coconut leaves and used within the lagoon:

I now for the first time saw a Penrhyn canoe under sail. Its mode of propulsion is, I should think, the most original to be seen in any part of the world. The sail is as simple in construction as it is primitive in appearance. For the purpose three long palm-boughs are cut from the nearest tree, and, after a few strips of bark have been torn from them, they are conveyed to the canoe. The lower or thick end of a bough is placed at the bottom of the canoe, with its long slender leaves standing perpendicularly to the height of about ten feet, and made fast to the cross-bar of the outrigger, which runs across the little vessel. A bough is then placed on either side of this, attached to it at the bottom, but inclined outward, and also fastened to the cross-bar. At the top the slender ends of the latter are bowed over to the centre end, the mingling leaves of all being interlaced a little to present further resistance to the wind. This, when completed, forms a broad sail. Strips of bark are fastened to the most extended part of the outer boughs, which are again secured to the stern outrigger: and thus the cocoa-nut tree supplies more of their necessities—sails, masts, spars, and rigging being all constructed in a few minutes from its boughs.

As there is no step for the mast to rest in, this deficiency is supplied by a little boy, who sits in the bottom of the oaka with his feet against it. By trimming the lee side of the sail a little aft, the boat will keep her course by the help of the paddle when the wind is on the quarter, but will not sail on a wind; or even with the wind abeam, when, having little hold on the water, she drifts to leeward. When the wind shifts thus the sail is taken in in as primitive a manner as it is set. The lashing being cut, and the back-stays cast off, away goes the whole ship's rigging overboard, the work of refitting being very speedy and easy.

Towards the end of our voyage we had the wind on the quarter, blowing pretty fresh, and I had to remain with my feet at the bottom of the mast, whilst the small boy sat on the out-rigger to keep her from capsizing, moving out on it or in again as the wind increased or fell.

In about an hour and a half we landed at Haka Shusha, a distance of eight miles, my boatmen cutting away their sail, and paddling off with all their might, in fear of being caught by their enemies.

The "few strips of bark" torn from the palm boughs were the *tari* strips from the butt end of the leaf midrib, which formed the common material for tying. It is possible that the sail which Kotzebue saw in the distance was of the coconut leaf type, and that the lauhala matting sail was not used. The term *ra* was equally applicable to the coconut leaf sail.

The canoes could not sail to windward but had to sail down on the wind, *hakasekeseke ki raro*. This corresponds to Lamont's statement, "the wind on the quarter."

The state of war that so frequently existed between different islands necessitated the use of much of the available timber in making war canoes. It is thus probable that the smaller fishing canoes were not common, because

of shortage of timber. This may have reacted on fishing methods and led to the more extensive use of wooden floats and swimming, for a wooden float must primarily have been a makeshift for a canoe.

FISHING

METHODS

In the absence of the pig and dog and of cannibalism fish form an even more important flesh food in Tongareva than in the Polynesian islands where there are other flesh alternatives. The supply in the lagoon, in the reef channels, and in the sea outside the reef is varied and abundant. Besides the rock-frequenting fish, flying fish, shark, and porpoises are taken.

Fishing methods are affected by the lack of material for lines and nets. The *hau* (*Hibiscus tiliaceus*) and the *oranga*, which provide the best fibers used in most islands, are absent from Tongareva, and coconut sennit fiber is used instead. Self-acting traps and walled fish traps are not used. There is a form of shark noose, but no squid lure. Fish are caught by groping, snaring, sweeping, driving, spearing, and angling.

GROPING

Groping with hands in the crevices of the rocks is practiced by members of both sexes who are expert divers and can remain under the water for some time. The method used in the daytime when the fish can be seen as well as felt is termed *nono* (Rarotongan, *naonao*). At night, when the sense of feeling alone is relied upon, the method is distinguished as *haha* (Maori, *whawha*).

SNARING

Sharks are snared with a slip noose made of a two-ply twisted sennit cord (*hau ato*). The *ruhia* shark, which comes into the lagoon after the *marau* fish when they are plentiful, are caught by diving down and placing the snare over the tail. Sharks termed *mango moe awa* (sharks that sleep in the channel) that at certain times sleep with their heads in rock crevices are also snared by the tail while they are asleep. The same method of snaring sleeping sharks prevails in Aitutaki. It may be stated that the species of sharks snared are not voracious man-eaters and are regarded merely as ordinary fish without any of the fear prevailing among Europeans, who regard all sharks as dangerous. It is quite safe for the expert to dive down and slip a noose over the tail. The snare is termed *sele*; the method of snaring a shark, *sele mango*.

SWEEPING

The coconut leaf sweep (*rau*) receives its name from the leaves (*rau*) of the coconut from which it is made. The leaves are split (*sasae*); and the half leaves are tied together (*sere*), twisted round and round to make the leaflets stick out in different directions (*viri*), and some of them may be braided together (*hiri*) to get extra thickness. A long sweep is drawn around (*taki*) so as to inclose the fish and drive them ashore. As the curve decreases the slack ends are doubled in to strengthen and thicken the sweep. The sweep is used by day and by night.

DRIVING

The drive (*aroaro*) method of fishing consists of driving shoals of flying fish or porpoises onto the reef, or turtles into the shallow water. When a shoal of flying fish is seen outside the reef canoes paddle to the outer side of them, stretch out in a semicircle, and drive them in toward the reef. Paddles are beaten against the canoes, and stones are thrown at the fish to urge them toward the reef. Escape back to the sea is blocked by the line of canoes and by swimmers, or, where canoes are not available, by swimmers only. Such methods have been abandoned, but Lamont (15, pp. 217-218) gives a good description of a drive:

On the third day we sat chatting in the usual quiet way, when a shout at a distance set the whole household in commotion. As Opaka started excitedly to his feet, I asked him, in his own language, what was the matter. "Eia ha?" said I. "No, te maroro," he replied; and, without waiting to give me further explanation, he seized a "toto," or bag-net, from the roof, and darted along the beach, calling the rest to follow. Fully as excited as himself, and shouting at the top of their voices, "Maroro! maroro!" each seized a mat-basket of some kind and rushed wildly off in the same direction. I followed them as quickly as the rough ocean shingle, with its burning stones, would permit. With their long hair streaming, and their eyes gleaming with excitement, I saw them diving into the hollow curve of the breakers that raised their white heads aloft, soon to appear again some distance off beyond the force of the waves. Men, women, and children alike fearlessly plunged beneath the foam, seemingly as much at home as on land. The multitudes in the sea, at first scattered over a considerable extent, now began to concentrate towards a point, not only keeping up an incessant noise with the voice, but jumping halfway out of the water, and, as they descended, striking their elbows to their sides, and clapping their hands, producing a report like a pistol-shot. I now observed shoals of flying-fish skimming the water in terror in every direction, often rising beyond the nets of the circle of men, who raised their arms to catch them, and often escaping in their flight the baskets of the outer guard of women and children. When the circle was sufficiently contracted to concentrate the fish in a mass, the men dived amongst them with their nets, which, soon becoming too heavy for them to support, were emptied into the baskets of the women behind, who proceeded with them ashore, riding behind the crest of a breaker that would dash an ordinary swimmer headlong upon the rocks, and returned again after they had emptied them. In about half an hour the shoal was all dispersed or caught, and each family had a bountiful supply of flying-fish, or "maroro."

The *toto* hand net and baskets of the *tupono* type are used to scoop up the fish.

Porpoises are driven into the shallow channels on the reef where men seize them and drag them up out of the water. Much ceremony is observed to ensure success; women are not allowed out of the houses, and children are instructed not to cry, as that would render the operations unsuccessful. Handy (9, p. 176) records a similar method in the Marquesas.

Turtles in the lagoon are driven into shallow water by men in canoes. Men jump overboard and dive down to keep the turtles swimming in the right direction and to prevent their doubling back into deep water. During the drive the men make as much noise as possible by shouting and beating the water with their paddles. As they reach shallow water the noise subsides and the turtles rest on the bottom. Men dive down and, seizing the front flappers from behind, lift up the front of the shells and force the turtles to swim up to the surface.

While examining the marae at Vaiari, we saw a rowboat that had forced a turtle in toward the lagoon reef, but the turtle had stuck on the bottom in fairly deep water and refused to go further in. As the crew of the boat failed to reach the turtle because of the depth, Tupou Isaia of our crew took a hand. In his first straight dive he could just touch the turtle. He came up and noted a high rock on the bottom with a lower one near the turtle. He dived down to the high rock, kicked off from it to the lower rock, and with another kick off from the lower rock he reached the turtle, got his hands in position on the front of the shell, and brought the turtle to the surface. He calmly appropriated the turtle as the reward of superior endurance.

Another form of fish driving is termed *titoko*. Before fish are driven into a channel, loose rocks are placed on stationary rocks and reef projections that are under water. As the fish are driven in, the rocks are kicked off with the soles of the feet by the drivers as they pass. The rocks, as they fall to the bottom, frighten the fish and cause them to go forward (*kia soro ki mua*). When driven to a confined space, the fish are scooped up with a hand net (*ka asu ki te toto*).

A method of driving the *sikutoto* fish is termed *toro sikutoto*. Thirty or forty men armed with pieces of coconut leaf a span in length and termed *usu* work around in a semicircle and, by beating on the water, drive the fish into the shallow water. The hand net is used to scoop them up.

SPEARING

Lamont (15, p. 278) saw the people spearing fish in the deep passage between Hakasusa and Vaiari, and he states that it was an exercise at which

the people were expert. Fish spears with metal points are now used exclusively, and no information concerning the spears originally used was available.

ANGLING

The general term for fishing with a line is *si* or *sisi* (Maori, *hi*). Since foreign lines, hooks, and sailing boats have come into use the following native methods of catching fish with the hook have been almost entirely abandoned. Hooks are described on pages 202-211.

1. Fishing from an anchored canoe (*tukutuku*). In *tukutuku* (to keep letting down) the baited line was lowered from a canoe which was kept stationary by an anchor resting on the bottom. The length of line was therefore not great. A baited circular hook was used.

2. Diving (*hakaruku*). The U shaped hook (*matau si ruhi*) was attached to a very short line, the end of which was tied to the middle finger of the right hand. The hook was baited and held in the midst of a handful of ground bait in the right hand. The mouth also was filled with ground bait. As the line was too short to reach the fish near the bottom, the fisherman dived down with the hook. The Tongarevans maintain that fish are not afraid of anyone under the water. On reaching the fish the fisherman opened his hand and let go the ground bait and the baited hook. He removed the first fish that he caught from the hook and placed it under his left arm. If the first fish was caught quickly there was still time to catch a second one. Seeing that his bait was intact on the hook he blew the ground bait out of his mouth, taking care that the baited hook was in the cloud of ground bait. He often reappeared from the depths with two fish. If he had a canoe he placed the fish in it and repeated the diving as long as he had success. In fishing beyond the outer reef it was not always convenient to launch a canoe, so the fisherman nonchalantly walked over the edge of the reef and swam out to sea with a piece of wood which served as a float or a buoy. The float gave him a certain amount of support when he desired to rest, but its main use was to buoy up the catch of fish and the bait. The same method of fishing was used, but on coming up he would thread the fish through the gills with a *tari* strip from a coconut leaf midrib and tie it to the float. After a catch was secured the fisherman tied the string of fish in a loop over his shoulder and swam ashore.

Although the fisherman had no fear of sharks, sometimes a shark did attack, not the man, but the string of fish. Mr. Wilson, resident Government Agent, and other eye witnesses tell of a fisherman who, swimming ashore with his catch of fish looped over his shoulder, had just such a difficulty. He called for assistance, and two men swam out to help him. Supporting him on either side, they enabled him to reach the reef and obtain foothold, when he walked calmly up on to the dry part of the reef. The man had a shark imprisoned horizontally across his back with its head under one arm and its tail under the other; the shark had a grip on the inner side of the upper arm that held its head. The shark, attracted by the fish, had followed the fisherman in and commenced eating the fish strung from his shoulder. The next thing the fisherman knew was that the shark had gripped him by the arm near the fish. The fisherman thereupon promptly closed his arm, pinning the shark's head against his side, and then coolly reached back with his other arm and brought its tail in under his other armpit. He had the shark jammed helpless, while he himself swam with his feet until assistance reached him. The shark let go when released, but it had removed a large piece of flesh from the arm of its captor. The shark was promptly slain by the fisherman's excited relatives. The hero in this fishing adventure made a perfect recovery, but the scar, which was deprecatingly shown to me, remained as a witness of

that same coolness in moments of emergency which enabled the Polynesians to conquer the Pacific.

3. Anchored hook fishing. The large shark hook was used, and also a short line, one end of which was tied to a stone anchor. The hook was baited with the tentacle (*mangamanga*) of a squid. The fisherman dived down with the hook and anchor, set it on the bottom and covered the line with sand. He then came up and watched from his canoe or float. When the fish took the bait it was prevented from getting very far by the heavy stone anchor. In the struggles of the fish, however, the anchor could be heard bumping on the ground, and the fisherman dived down and secured his line and the fish. Besides shark, *maratea*, which may weigh as much as 80 pounds, were caught in this manner.

NETS

Fish nets were made of two-ply twisted sennit fibre (*hau ato*), but commercial twine has now completely superseded sennit. A netting needle (*ta*) and a mesh gage (*mata*) were said to have been used. As *ta* is the widespread Polynesian verb meaning to make a net, and as *mata* is the mesh, the lack of specific terms indicates that special implements were not used. Lamont (15), however, saw the *toto* hand net in use, so there is no doubt that the netting technique was known. The knot is the same as that in Rarotonga, New Zealand, and Samoa (29, p. 471). The small meshes are termed *mata hiohio*, and the large ones, *mata tua nunui*. Four types of net were described:

1. Ordinary hand net (*toto*). The *toto* was the commonest net. It had an oval frame made of two thin pieces of wood tied together at either end and with a crossbar tied across a few inches from the thicker end to spread the frame out into oval form. A bag net was made, a circumferential two-ply cord was run through the circumferential meshes, and another cord was run spirally around the circumferential cord and the oval frame to keep them together. The net was used to scoop up fish in sweeps and drives. It was also set in the channels where fish were driven into it.

2. Fine meshed scoop net (*sema*). The *sema* had a finer mesh than the *toto*, but otherwise was similar.

3. Bag net (*takeke*). The *takeke* was a bag net without a wooden frame but with ropes attached to it to keep the mouth stretched and open. It was set on the bottom of the lagoon on one side, with the opening in vertical position. Stones were set on the part of the net opening that lay on the bottom.

4. Baited net (*taka*). The *taka* was a bag net with a hoop of *ngangie* around the opening. A line was attached to the hoop, and the net was baited. It was lowered with the line, and fish such as *kohiri* were caught by drawing the line up quickly when the fish were felt biting at the bait.

A flying fish net with a long handle similar to that used in the Cook Islands (28, p. 288) is now also used in Tongareva. As the *aroaro* drive method of catching flying fish was recognized, it seems probable that the present form of flying fish scoop net has been introduced in post-European times. The flying fish net seen had two crossbars across the frame at the handle end.

LINES

The introduction of foreign fishing lines has led to the abandoning of purely native material and a lack of clarity as regards technical details has resulted.

The material for fishing lines was restricted to coconut husk fiber, owing to the absence of the more suitable plants used in other parts of Polynesia. The lines were twisted (*miro*) on the bare thigh into two-ply twisted cords, but fairly thick three-ply braid was used to form attachment cords for the large shark hooks. Gudger (7, p. 230), in describing two shark hooks obtained by the Wilkes expedition, states that a long fibrous material was used in addition to sennit in the lashings. My informants did not mention anything but sennit. Wilkes (31, vol. 4, p. 287), in figuring some hooks from Tongareva, shows one attached to a long line which is wound in longitudinal lengths and then with transverse turns, leaving the longitudinal turns projecting at either end. The point of the attached hook is then evidently stuck in under one of the transverse turns at one end. This corresponds to the Samoan method of winding the *pa ala* line and hook (29, pl. 47, B), except that the middle part is not covered by the transverse turns. In the figure by Wilkes the transverse turns are continuous over the middle of the hank. The method of winding thus weighs against affinity with the Samoan line, but the method depicted is used in Tahiti, from which island the hook probably came.

HOOKS

PARTS OF THE HOOK

The hook is conveniently divided into the shank, the bend, and the point. Beasley (1) and Gudger (7), the most recent writer on Polynesian fish-hooks, refer to the point as the "barb," but as the term "barb" is specifically applied to a projection near the point in trade metal hooks and some forms of Polynesian hooks, its use as a general term to include hooks without the special barb projection is apt to convey an erroneous impression. The barb is a distinct invention added to the point to prevent the hook from working free during the struggles of the hooked fish. Most Polynesian hooks obtained a like result from the extra inward curve of the point toward the shank, and form a marked contrast in shape to hooks of foreign make which are more open. In the open point of the bonito hook neither the inward bend nor the barb were desired, as quickness in detaching the hook and retrolling it was important when the fisherman was on a school of bonito. The skilled fisherman could either flick the fish off into the canoe

with a jerk of the rod, or as he brought it in, strike the fish with his hand to jerk the body upward so that it fell off the hook. Neither of these methods of quick detachment could be so readily carried out if the hook had an inward bend or a true barb.

The bend of the hook is either curved or rounded, but in some hooks it forms an angle. It is then convenient to distinguish the two limbs formed as the shank limb and the point limb. In simple hooks (fig. 58) made from one piece of material, the shank, bend, and point are quite clear. In composite hooks made of two pieces the form of the point element affects the terms used. The upper end of the shank is provided with a projection on the outer side or part remote from the point. The projection is triangular, with the lower side at right angles to the shaft and the upper side sloping upwards and inwards, sometimes with a distinct, concave curve. The Tongarevan term for the projection is *reke* (knob), and as it is constant in most types of hook, it may be conveniently termed the shank knob. Its use is to prevent the lashing which binds the snood to the shank from slipping. The bend is termed *kopu* (belly) and the point, *mata* (point).

ONE-PIECE SHELL HOOKS

The two types of baited hook described as native to Tongareva are simple hooks with the shank, bend, and point shaped from one piece of pearl shell. Both types are provided with shank knobs, and the points are without barbs. They may be classified as U shaped and circular.

A U shaped *ruhi* hook (fig. 55, *a*, *b*) was drawn by an informant. No actual hook was seen, but a piece of shell in the process of manufacture

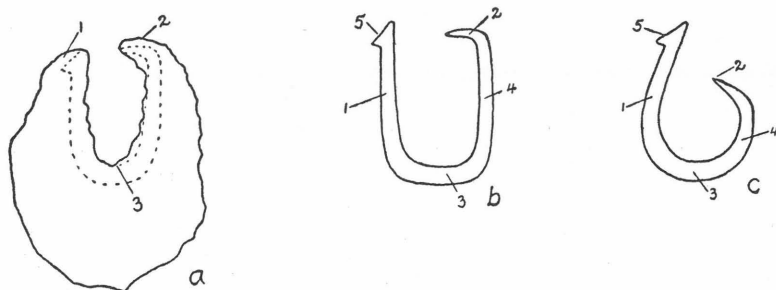


FIGURE 55. One-piece pearl shell hooks: *a*, U shaped *ruhi* hook in course of manufacture; *b*, completed U shaped hook; *c*, circular hook. *a*, U shaped hook in course of manufacture: 1, part of shell to become shank knob; 2, part to become point; 3, bend. Shell 63 mm. long by 47 mm. wide shaped to oval form; gap cut out at smaller end to form inner curve 29 mm. long by 15 mm. at widest part; dotted lines show shell in completed hook, though part of left gap is broken off and knob might actually be higher. *b*, *c*, completed hooks: 1, shank limb; 2, point; 3, bend; 4, point limb; 5, shank knob. Shank knob has same form in both hooks.

was picked up in the stone circle on Naue. The edges of this piece of shell show curved depressions as if flakes of the material had been pressed off with some stone flake or hard portion of *Tridacna* shell. The depressions have not the clear-cut appearance of perforations made with a hand gimlet, and they vary in size. On completion of the rough shape the hook would have been rubbed down with shark skin or the rough skin from the back of the tail of a skate. The skin rasp was also used to form the correct inner curve of the hook. The hook is used principally in catching the *ruhi* fish, one of the best eating fishes in Tongarevan waters. It was pronounced a *matau si ruhi* (hook for catching ruhi).

The circular hook is used for catching fish less than 9 inches in length, such as the *marau* and the *kokiri*.

No Tongarevan baited hooks with lashings were seen but, judging from similar Rakahangan hooks, they must have been attached to three-ply twisted snoods of sennit fibre. The lower thicker end of the snood was unravelled, and each ply separately bound round the shank and knob in a particular technique. A fine two-ply twisted thread of sennit was then bound over the snood attachment by making figure-of-eight turns around the shank on one side and alternately above and below the shank knob on the other. The end of the thread was finished off with a number of close transverse turns around the snood ending in half hitches and stoppered with an overhand knot.

A bait string (*nape*) is formed of a fine two-ply twisted sennit cord, which is tied with a slip knot below the angle made by the point with the point limb. It is used for tying the bait on to the hook.

COMPOSITE HOOKS

1. The pearl shell bonito hook (*matau uhi*). Whether introduced or not, the bonito hook deserves description, as it is now made locally.

The hook is composite, consisting of a shank and a separate point. (See pl. 8.) The shank is made of strips of shell averaging 18 mm. in width and cut so as to include a part of the thick hinge at one end. Four shanks in Bernice P. Bishop Museum range in length from 113 to 124 mm. The hinge end is termed the head, and the other thinner end, the tail. The nacreous inner surface of the shell forms the front of the hook. The rough outer surface forming the back of the hook is ground down to remove the rough dull material and form a clear shiny surface which has iridescent colors toward the tail. (See fig. 56, *a*, *b*.)

The point of the composite hook is made of pearl shell taken from near the edge of the shell away from the hinge. The point piece is cut out on the flat, so that one side shows the natural inner surface of the shell, and the other shows the black outer surface which is smoothed down but not polished. The point piece is fitted against the front of the shank, and the part which fits against the shank may be termed the point base. The problem is to extend this base to make it long enough to support two lashings and so to render the attachment firm. The Tongarevan point follows the form of the Samoan hook, in which the base is prolonged proximally or on the same

side as the functioning point. As the point has to be cleared, the part of the shell between the point and the base has to be hollowed out. The point piece thus carries the technical "bend" of the hook as well as the functional point and the base for lashing. For lashing purposes two holes are drilled through the base, which must be deep enough to hold the holes. (See fig. 56, *c, d, e*.) In three out of four hooks in Bernice P. Bishop Museum the proximal perforations broke through the upper edge, forming grooves. In three hooks the point was everted.

The bonito hook lashing is shown in figures 57-60.

The Tongarevan point is characterized by the proximal prolongation of the base with two holes for lashing and the material of shell. Beasley (1, pl. 14) figures a point with the typical proximal prolongation of the base but with three lashing holes, giving bone as the material. No mention is made in the text of the hook to which the point belonged. Because of the difference in material and number of holes the locality needs confirmation.

Supporting the theory that the bonito trolling hook was introduced, Solomon of Tautua stated that the drill with the crossbar and two cords was unknown in ancient times.

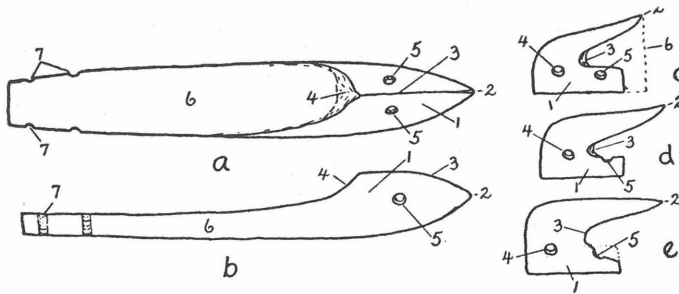


FIGURE 56. Bonito hooks: *a, b*, shank; *c, d, e*, points. *a*, front; *b*, side of shank: 1, thick hinge part ground on both sides in curve to proximal point; 2, point; 3, median line at meeting of sides ground inward at slant, forming triangular head, maximum thickness about 14 mm.; 4, surface of hinge; 5, transverse hole drilled through horizontally below median ridge at about 18 mm. from point; 6, shank beyond head, gradually diminishes in width to about 12 mm. and in thickness to 4 or 5 mm. at tail end, where it is cut off square or with slight convexity from side to side; 7, two shallow grooves cut vertically on both sides at tail end. Longitudinal natural curve of back and corresponding front concavity apparent. *c, d, e*, points, side view: 1, base in *c*, 22 mm. wide and 6 mm. high in clear proximal part, in *d*, 19 mm. wide but only 5 mm. high in clear proximal part, causing proximal hole (5) to break through upper edge, and in *e*, 23 mm. wide; 2, point, slightly everted (*c, d*) and straight (*e*); 3, bend cut out between base and point; 4, distal hole bored through base; 5, proximal hole or hole broken through to upper edge (*d, e*) because of high placement, and leaving groove (*e*) effective in lashing; 6, distance between point and shank (*c*) 21 mm., and corresponding clearance (*d, e*) between point and shank 17 mm.

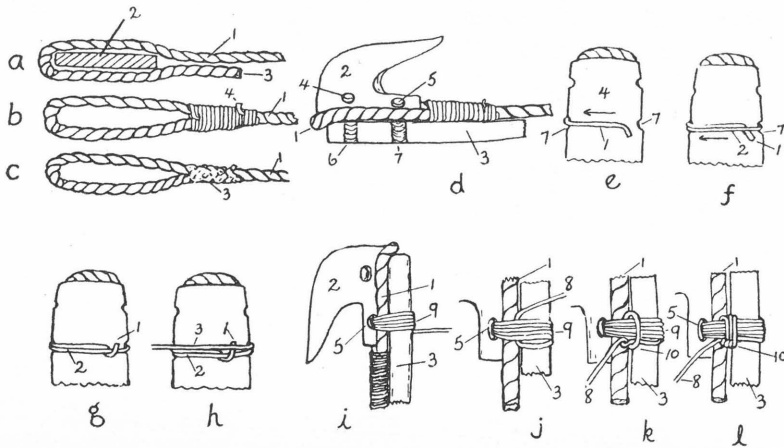


FIGURE 57. Snood loop and lashing of proximal hole of bonito hook. *a*, snood, *matai* (1), is passed around base of point (2) with its end (3) overlapping by about 15 mm. *b*, two-ply twisted thread commences distally to lash overlap together by burying end of thread under subsequent transverse turns which cross it; transverse turns are continued for length of overlap; end (4) is turned back under three loose turns which are subsequently tightened; slack is removed by drawing on end; end is cut off short. *c*, overlapping ends of some loops are spliced (3) for distance of about 10 mm., a method probably recent. *d*, side view: point (2) is placed in position on tail end of shank (3) with back edge projecting a little beyond end of shank; grooves (6, 7) are cut on sides of shank opposite holes (4, 5) in point; loop (1) of snood is placed around base of point and loop end bent down under projection formed by protruding back of point base. *e-h*, back of the shank tail. *e*, with point and snood loop in position, lashing thread (1) is laid on back of shank (4) between pair of proximal grooves (7, 7); end is bent down at angle and held in position by left thumb while left forefinger keeps point in position on other side of shank; thread is passed transversely to left by right hand to lateral groove (7) up over snood loop and through proximal hole of point base. *f*, thread descends on the right side over other limb of snood loop and right groove (7) of shank to reappear on back, where second turn (2) in passing transversely across to opposite groove crosses obliquely bent end of first turn (1). *g*, oblique end (1), crossed by the second turn (2), is bent over second turn. *h*, third turn (3), after passing through point hole in making transverse turn around shank, crosses and doubly fixes end (1); five or six lashing turns are made through the one hole. *i-l*, side view. *i*, six lashing turns (9) pass through hole (5) of point (2), over snood (1), and around shank (3). *j*, thread (8) is brought up on right side and passed from proximal side under lashing (9) in space between shank (3) and lower part of snood (1). *k*, the thread (8) is brought back over lashing (9) and looped through under its standing part to form overhand knot (10). *l*, two other loops with overhand knots are made and thread (8) is continued on through hole (5) to other side, where it makes similar set of loops and knots over lashing; thread end is cut and proximal lashing of base is completed.

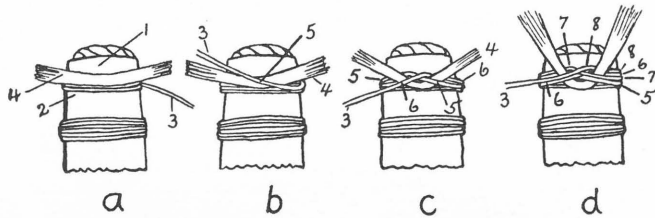


FIGURE 58. Bonito hook lashing, distal hole and pig's hair hackle: *a*, lashing thread is fixed on under side of shank (1) in exactly same technique as proximal hole, and hackle (4) is laid transversely along over lashing on under surface of shank; *b*, the thread (3) is brought around on right and crosses hackle (4) obliquely (5) to the left, on distal side, to continue lashing turn through hole in point base; *c*, thread (3) is brought around on right on distal side of hackle (4) which is bent forward to approximate limbs of hackle, crosses bend of hackle obliquely to left on way to lateral groove to continue lashing turns—second turn (6) over hackle also crosses first turn (5) in middle line; *d*, thread is brought around on right proximally to hackle and makes turn (7), keeping on far side of the first turn (5), passes on through point hole and, coming back on right or distal side of hackle, makes crossing (8), keeping to far side of previous turn (6) in same direction. Second pair of turns (7, 8) lashes limbs of hackle and maintains them in bent position, and thread carries on with finishing turns around lashing on either side as in figure 57, *j-l*.

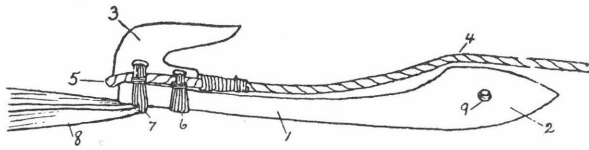


FIGURE 59. Bonito hook, completed lashing of point, snood loop, and hackle: 1, shank; 2, head; 3, point; 4, snood drawn over mesial ridge of head; 5, snood loop fixed under lashings of point; 6, first lashing through proximal hole of point; 7, second lashing through distal hole of point; 8, hackle fixed on back of shank by second lashing; 9, hole through head.

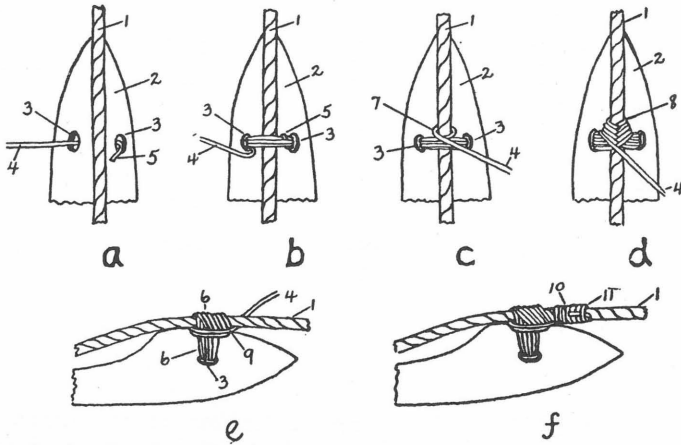


FIGURE 60. Bonito hook, lashing of snood to shank head: *a-d*, front view, *e, f*, side view. *a*, snood (1) rests on median ridge of shank head (2) with transverse head hole (3) showing below snood on either side; lashing thread (4) is passed through hole, and short end (5) on right is bent upward. *b*, lashing thread is brought over snood (1) from left and down through hole on right, passing over bent short end; short end (5) is bent upward over first turn, and two more turns are made through hole and over snood; short end (5) is thus fixed in position. *c*, next turn (7) passes from left over snood (1), makes complete turn around it, crosses itself on middle of snood, and passes down on right through hole to prevent snood from slipping off median ridge—three similar turns were made on the hook examined and then straight turn without looping around snood. *d*, eight more turns with loop around the snood are made, first crossing (8) being distal and subsequent ones following on near side, so as to develop neat ornamental pattern. *e*, two to four circumferential turns (9) are made by passing thread (4) between snood and head and over both limbs of lashing (6). *f*, thread is continued on in close spiral for about 8 turns (10) around snood and fixed with a couple of half hitches (11).

2. The *Ruvettus* hook. The wide distribution of the composite wooden hook for catching the castor-oil fish (*Ruvettus pretiosa*) has been shown by Gudger (7) and Beasley (1). Hedley (11) calls attention to the manufacture of the hook from a forked branch, Kennedy (13, pp. 12-27) gives details of the hook in the Ellice Islands, and Nordhoff (19, pp. 221-232) discusses its distribution and its diffusion in the Society Islands, Cook Islands, and elsewhere. The typical hook (*kau*) is now used in Tongareva, but the inhabitants think it was introduced. None was seen, but they are said to be made of *ngangie* wood (*Pemphis acidula* or a closely allied species) and shaped like those used in Rakahanga and Manihiki.

The *Ruvettus* is a deep sea fish, and a considerable length of line is required. The sinkers are attached in such a way that on reaching the bottom they automatically detach and so relieve the fisherman from drawing up the

heavy sinker in addition to the fish. The Tongarevan method of attaching the sinker to the hook by a forked branch differs from the usual method, the use of the detachable loop. The local names for the parts of the hook and the sinker attachments as described by Nordhoff (18, pp. 42, 43) are shown in figure 61.

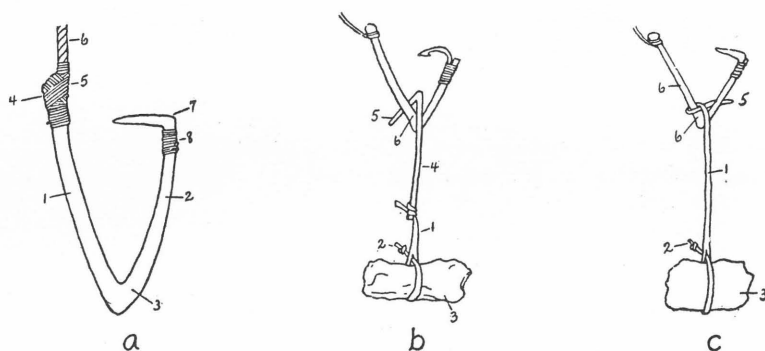


FIGURE 61. Ruvettus hook: *a*, parts of hook; *b*, *c*, sinker attachments from Tongareva and Cook Islands (after Nordhoff). *a*, parts of hook: 1, shank limb; 2, point limb; 3, bend (*kopu*); 4, knob (*reke*) to support lashing; 5, lashing of snood and shank; 6, snood (*matai*); 7, point (*reinga*); 8, lashing, point limb to vertical end of point. *b*, Tongarevan attachment: strip of hala (1) is knotted at one end (2), which is passed through split made in strip to form running noose around coral sinker (3); other end is tied to straight end of forked stick (4); fork (5) is hooked over bend of hook (6); baited hook is lowered and, when sinker touches bottom, forked stick falls away from slackened line, and sinker is detached. *c*, Cook Islands attachment: longer strip of hala (1) is passed over hook bend, brought around shank limb, and end (5) is passed under loop; weight of stone presses short end against hook and prevents it from slipping; on release of pressure when sinker touches bottom, loop slackens and frees sinker.

3. Shark hooks. Composite wooden shark hooks are made of *ngangie* wood and differ from *Ruvettus* hooks in that the shank leg and point leg meet at a curve rather than at an angular bend. The separate point, also of *ngangie* wood, is curved so as to carry the point of the hook toward the shank limb.

The wood is hard and tough and does not break easily. Gudger (7, p. 230, 232) infers that the shark hooks examined by him were made of the roots, but it is unnecessary to suppose that the growing roots were trained to the required curve. The *ngangie* is a stunted plant with very crooked branches, and naturally curved branches were selected. The curve could be exaggerated in young growing branches by bending and tying them in position, and the subsequent growth would make the curve permanent. In New Zealand the young growing branches of straight branched trees such as the *tanekaha* (*Phyllocladus trichomanoides*), were formed into

a loose overhand knot and allowed to grow into a permanent curve for wooden fishhooks.

Two shark hooks collected in Tongareva by the Wilkes Expedition are now in the United States National Museum. If the hook illustrated by Wilkes (31, vol. 4, p. 287) is intended to represent either of the two in the National Museum the artist, according to Gudger (7, pp. 230-231), has not made the bend sharp enough. (See fig. 62, *a*.)

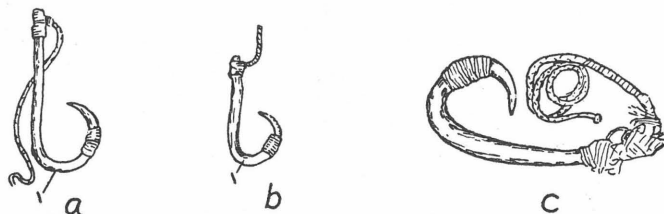


FIGURE 62. Shark hooks collected by Wilkes Expedition: *a*, hook figured by Wilkes, no description, probably meant for hook no. 3674 in National Museum, but bend (1) made too rounded; *b*, hook figured by Hough, National Museum no. 3674; *c*, hook after Gudger (7, p. 230, fig. 19), described as largest hook in National Museum.

Hough (12, pl. 26, no. 1) pictures a large hook, similar to the one represented by Wilkes in the lashing of the snood, and a sharper bend. (See fig. 62, *b*.) In Hough's description the hook is wrongly labelled "Fiji," and Gudger (7, p. 231) states that the same hook was labelled "Tahiti." H. W. Krieger, Curator of Ethnology of the U. S. National Museum, says in correspondence that it is the larger of the two Tongarevan hooks in the Museum, and gives an additional description:

The shank leg (straight line measurement on outside) is 9 inches, the barb leg 4 inches, and the barb (point) measures from lashing tip 2.5 inches. The tip of the barb (point) approaches to 15-16 of an inch of the shank leg. The attached cord of sennit is 44 inches in length. It is a flat braid of three-ply twisted fiber of coconut palm which tapers toward the knotted end. At the shank end the cord is separated into its component parts which are again subdivided into two-ply strands lashed about the shank end where they are partly embedded in an encircling groove. Loose strands are used to cover 7 inches of the proximal end of the attachment cord where it is attached to the shank. This ferrule is loosely plaited. The point of attachment of barb [point] to barb leg is ferruled with a two-ply braid of sennit like that of the lower end of the attachment cord. The form of the lower end of the hook made by shank, barb leg, and barb [point] is roughly that of an acute triangle with slightly rounded angles.

Gudger also describes the two hooks in detail. As he states (7, p. 231) that the smaller of the two hooks is more like Wilkes' and Hough's figures and states that Hough's figure is taken from the larger hook, some confusion is evident. Gudger states that a long-fibered material was used to seize the lashing in both hooks. The textile-like stipule (*kaka*) from the

base of the coconut leaves was used in Manihiki to protect the lashing and snood, and as this is the only fibrous material besides sennit available in Tongareva the material mentioned by Gudger is probably the same.

A metal hook with two long limbs meeting at an acute angle with the point bent in toward the shank leg is said to have been introduced from the islands to the south.

COMPARISONS

Characteristic of Tongarevan fishing is the short line, the common use of which was rendered possible by the cultivation of diving abilities, and may have been necessitated by the lack of fiber. The hooks used, however, are not peculiar to Tongareva. The wide U shaped pearl shell hook is found in Manihiki, Rakahanga, Pukapuka, the Tuamotus and Tahiti, and the composite wooden shark hook has a wide distribution. The third form of circular hook used with an ordinary length line from a canoe at anchor also has a fair distribution. The use of but two simple pearl shell hooks in Tongareva is in contrast with the greater number of forms in use in other atolls such as Manihiki, Rakahanga, Pukapuka, and the Tuamotus, where pearl shell material was also abundant. The method of driving flying fish is known elsewhere. Kennedy (13, pp. 61-63) describes its use in the Ellice Islands. Handy (8, p. 176) describes the method of driving porpoises in to the reef in the Marquesas.

That diffusion of the *Ruvettus* hook into the Society Islands, Tubuai in the Austral Islands, and Anaa in the Tuamotus is comparatively recent has been shown by Nordhoff (19, pp. 224, 225). The contention of the Tongarevans that it is a recent introduction to their islands is also probably correct. In most localities *Ruvettus* fishing requires a great length of line. Tongareva lacked suitable material for long lines and, though sennit fiber was available, the only line fishing from the surface was from an anchored canoe. Even for this use, the Tongarevan fishing line was comparatively short, the same length as the anchor rope. Nordhoff associates *Ruvettus* fishing with cannibalism, which, again, seems to have been absent in Tongareva.

The recency of diffusion of the bonito hook is more doubtful. The chief objection to the age of the bonito hook raised by the Tautuan people was that they had no drill. Though the proximal hole in the point base may be displaced by a groove, the distal hole and the hole through the head both require drills. If the bonito hook came by fairly recent diffusion it did not come from Tahiti, as the second lashing of the point is made over a distal prolongation of the point base toward the tail. The bend of the Tahitian hook is equally formed by the shank and the point, whereas in the

Tongarevan hook the bend is formed on the point piece by the proximal prolongation of the base. The Tongarevan point has affinity with the Samoan point, but Tongareva and Samoa differ in the principles of the lashing technique. In Samoa (29, p. 501) the snood is tied to the proximal hole of the point base, and an extra lashing element which extends from the proximal hole of the base point to the head hole is introduced. The method of attaching the hackle is also much different. The Tongarevan technique is similar to that of Manihiki and Rakahanga.

On the other hand, Kotzebue (14, p. 219) says, "We obtained from them some fishing hooks, which were two pieces of mother-of-pearl joined together, and wrought in the most tasteful manner, perfectly resembling those of the Sandwich Islands." The Hawaiian islands (Sandwich Islands) bonito hook has a simple point without prolongation of the base, and the points themselves are of bone. Though the resemblance cannot be perfect, it may have seemed so to Kotzebue, enough at all events to form evidence for the presence of the bonito hook in Tongareva if Kotzebue's hooks can be located and examined. Wilkes (31, vol. 4, p. 287) shows a group of hooks, one of which may be a bonito hook, but Kreiger says in correspondence that the hooks shown are apparently from several sources.

WEAPONS

SPEARS

The weapons used by the Tongarevans were spears, clubs, a short truncheon, and stones. Also, women used a light club.

Generally in Polynesia the term for spear is *tao*. The Tongarevan spears (*to*) were made of coconut wood. A non-bearing tree trunk was cut off into lengths of two arm spans (*maro*). Longitudinal lines were drawn with charcoal along the log and the hard wood was cut down along a line by more than one worker until the soft fiber center was reached. The log was turned over and a similar line was cut down on the opposite side. Wedges of stone or wood were used to assist in splitting the log into halves, then into quarters, into eighths, and so on until the pieces approached the required size of the spear. The wood was rubbed down with the rough skin from the tail of a sting ray (*heiheimanu*). The skin was fastened to a stick to use as a rasp. When the required roundness was secured, the weapon was smoothed off with a fibrous mushroom growth (*kana*) that is found growing on the coral rocks in the lagoon. The material, when dried, acts like sandpaper. Lamont (15, p. 155) called this material "poerare," which in its correct form was probably the true name of the material. The term *kana*, given to me, is the functional name which seems to have displaced the other.

The spears averaged 10 to 12 feet in length, but some were as short as 6 feet. One end was pointed and the other blunt. The point was either continued by gradually diminishing the roundness of the wood, or widened and made two-edged. Kotzebue (14, p. 219) states that about a hand's breadth of other wood was fastened to the bottom of the long spears (lances) with strings of "cocoa-bast." Choris (3, pl. 12) illustrates the two types of points, and it is evident from his drawing that the butt pieces mentioned by Kotzebue are also present. (See fig. 64, *a*, *b*.)

The Tautuan people stated that the hard point from the base of the tail of the sting ray was used for spear points (*hoto heiheimanu*). Some of my informants stated that the spears were from 2 to 6 *maro* in length, but 6 arm spans seems inordinately long. The spears were thrown. The following incantation was used with the spear:

Maireriki ua te tangata tu a—
E tu mai ana ma te to hoto,
Tu, tu, hio.

Maireriki alone is the man to stand—
He stands forth with the sting ray pointed spear,
He stands, he stands, to the end.

CLUBS

The men's club (*korare*) was made of coconut wood and was as long as two arm spans. It had a wide blade, somewhat paddle-shaped in coming to a distinct point. The blade was thickest in the longitudinal median line where a median edge was formed on either side surface by sloping planes running outward to form sharp lateral edges. (See fig. 63, *c*.) The club was cut out of a coconut log with shell adzes and finished off with the sting ray rasp and the *kana* material. The club was used in hand fighting in which thrusting blows (*to*) with the point, or cutting blows (*tipu*) with the sharp edges, were made. Lamont (15, p. 155) states that the "coerare" (club) was ornamented with some carving on the blade end.

The women's club (*tamutu*) was made of the same material and by the same method as the men's club, but it was lighter and had a blunt distal end. My informants described the blade as being shaped like a European oar. It was also shorter, being one arm span in length. The club is not now obtainable, but figure 63, *d*, reproduced from Wilkes (31, vol. 4, p. 287), shows a weapon that conforms to the native description of the *tamutu*. It is carved on the blade with paired chevrons with the apices proximal. Lamont (15, p. 133) states, "The long light paddle-shaped club used by the women is called a 'coerari,' and is used in battle principally for breaking the spears of the men of the opposite party." To Lamont, the blunt-ended weapon would be as much "paddle-shaped" as the pointed *korare* of the men. My informants were definite in distinguishing the women's club as a *tamutu*. From Lamont's use of the term "*coerari*" it is quite possible that both forms

were termed *korare*, but that the women's club, because of its blunt end (*mutu*), was specially termed *ta mutu*, which would mean "to strike" (*ta*) with a blunt-ended club. The distinction in shape is also borne out in the name of the pointed club (*korare*) by including the word *ko* (to thrust).

The truncheon (*motumotu*) was made of the tough *ngangie* wood. It was about two feet long, thicker at the distal end, and was pierced by a hole through the grip end. A cord loop was run through the hole, by which the weapon was hung round the neck when it was not in use. The *korare* was used at longer range and the *motumotu* for close fighting.

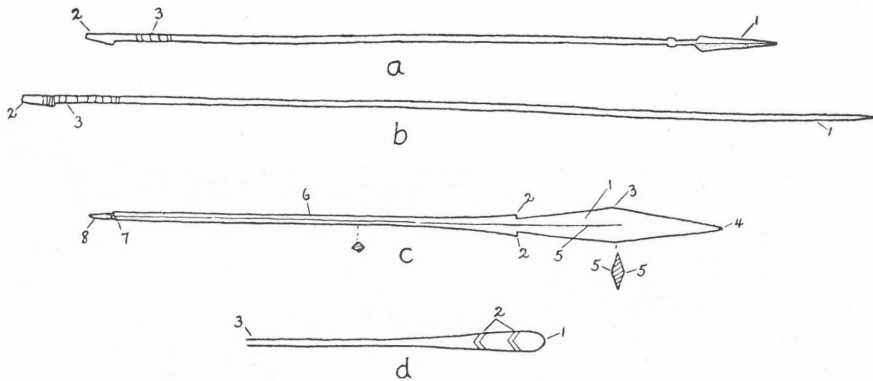


FIGURE 63. Weapons: *a*, *b*, spears (*to*) after Louis Choris; *c*, man's club (*korare*) in Bernice P. Bishop Museum (C. 292); *d*, woman's club (*tamutu*) after Wilkes. *a*, spear with wide two-edged point and *b*, with simple point: 1, point; 2, butt piece; 3, lashing of butt piece to spear shaft. *c*, man's club, 7 feet 9 inches long: 1, lozenge-shaped blade 30 inches long, 2.1 inches wide, and 1.1 inches thick at proximal end; 2, well-marked shoulders cut in at right angles to mesial longitudinal line to meet blade, making flare of shaft on surface slightly higher and 0.1 inches thicker than blade; 3, widest part of blade not quite halfway between shoulder and point, 5.1 inches wide and 1.3 inches thick; 4, sharp point; 5, median edges of blade (see section), disappear beyond widest part; 6 shaft, 3.1 inches wide at distal shoulders (2), sloping in to width of 1.55 inches and thickness of 1.1 inches near middle of shaft, median and lateral edges making shaft four-sided instead of round; 7, point 3.2 inches from proximal end, 1.1 inches wide and 1.0 inches thick where transverse cut made; 8, blunt point at proximal end. *d*, woman's club: 1, rounded distal end differentiating it from pointed club used by men; 2, two paired chevrons incised on shoulderless blades; 3, proximal end of shaft which ends indefinitely in Wilkes' drawing.

STONES

Slings were not used, but stones were thrown by hand in warfare. Stones of suitable size were gathered and piled up near the landing places or community centers as ammunition for defensive purposes. They were also carried in the canoes. Thus Wilkes (31, vol. 4, p. 278) records that in the canoes which visited the *Porpoise*, spears were the only weapons, except

pieces of coral, seen. He also states that after some of the natives had been driven overboard for pilfering, "The moment they got into their canoes, large pieces of coral and shells were hurled on board with great force; two guns were fired over their heads but they took no notice of them and stood up in their canoes, brandishing their spears and yelling defiance."

The throwing of stones onto Wilkes' vessel is similar to the throwing of spears against the side of Cook's vessel as a Maori challenge to fight.

THE STARS AND CALENDAR

LEGEND OF MAAHU AND MAUI

The stars were originally in one mass like the sun and the moon. The original single star was divided up by Maahu. Maahu and Maui had a competition to see which could throw the other higher into the air. Maui threw Maahu so high that he reached close to the heavens, where he heard the following disparaging remark: "Ko wai tera upoko raparapa te hoki ra ki raro?" (Who is that flathead going back below there?)

On reaching the earth, Maahu asked Maui to throw him higher, and this time he reached the heavens. He saw three people there, namely Ra (sun), Marama (moon), and Hetu (star). He asked them which had spoken the evil of him. Ra and Marama told him it was Hetu. Thereupon, Maahu broke Hetu up into fragments and sprinkled the pieces over the surface of the heavens.

THE YEAR

The year (*mataiti*) is divided into 12 months as follows:

- | | | |
|-----------------|---------------|----------------|
| 1. Paroro mua | 5. Aitua mua | 9. Muriaha |
| 2. Paroro muri | 6. Aitua muri | 10. Tokaanga |
| 3. Silinga mua | 7. Hakaahu | 11. Hakaunuunu |
| 4. Silinga muri | 8. Aroamanu | 12. Serehu |

It was stated that in the Paroro mua month the winds turn to the north-west and the west (*Kua haere te matangi kia Turakipu e Matapare*). The local people say that the northwest and west winds arrive in February. In both the Paroro months food grows (*Ka tipu te kai*). The names of the first two months resemble the Samoan months of Palolo mua and Palolo muli, both of which are based on the appearance of the *palolo*, sea worm (*Nereis*). In Tongareva, however, the sea worm is unknown. The names, therefore, appear to have been carried over from a region in which the sea

worm had such a set time of appearance that it was of definite use in a calendar. The name of the last month, Serehu, appears in a chant.

Kua haiti au ki na ra kimi ai,	I draw near to the days of searching,
Tu mai va e—	O season stand—
Kua noho koe ki te upoko o na kainga	You will remain at the head of the food
kimi ai,	lands, searching,
Tu mai va e—	O season stand—
Ko Serehu matua taku nohoranga.	With father Serehu I will stay.

The people gathered at the marae of Tongariro to bid farewell to the old year and welcome the new year. They danced to the following song:

Ka tekiteki au,	I will dance,
Ka tekiteki koe,	Thou wilt dance,
Ka tekiteki karu,	Dance at the loosening,
Karu ai na po.	The loosening of the nights.
Kua riro te mataiti,	The year has passed away,
Tekiteki karu,	Dance to the loosening,
Karu ai na po.	The loosening of the nights.

The term *tekiteki* means to pass in procession by hopping on one foot and then on the other. The word *karu* means the loosening of a rope. The passing of the nights of the old year is thus figuratively referred to as the loosening of the rope that bound them together successively. My informant was unable to say when the new year commenced and what was the sign.

THE NIGHTS OF THE MOON

No explanatory details could be obtained, but the following list of the nights of the moon was collected:

1. Tireo	11. Hoari	21. Te tahi o te Korekore
2. Hiro	12. Hua	22. Te roto o te Korekore
3. Soata	13. Maharu	23. Te hakaoti o te Korekore
4. Tahi no te Samia	14. Atua	24. Te tahi o te Tangaroa
5. E roto no te Samia	15. Hotu	25. Te roto o te Tangaroa
6. E hakaoti no te Samia	16. Marangi	26. Te hakaoti o te Tangaroa
7. E tahi o te Tamatea	17. Turu	27. Tane
8. E roto o te Tamatea	18. E tahi o te Rakau	28. Mauri
9. E hakaoti o te Tamatea	19. E roto no te Rakau	29. Rongonui
10. Huna	20. E hakaoti o te Rakau	30. Mutu

The outstanding feature of the Tongareva list is the consistent grouping of certain names in threes. Of these groupings, two are in the first half of the month and three in the second half. The groupings in twos, threes, and fours occur in other parts of Polynesia. In the Tongarevan groupings the qualifying terms used are *tahi* (first), *roto* (inner, middle), and *hakaoti* (last). A comparison with lists published by Best (2), Handy (9), Stim-

son (26), and Williams (33) shows that a great similarity prevails from New Zealand to Hawaii, but in Samoa (21) the list is not only abbreviated, but no name coincides with any of those on lists from eastern Polynesia. The Tongarevan list coincides closely with that of Tahiti and with those of Rarotonga and New Zealand.

The first three nights, Tireo, Hiro, and Soata (Hoata) correspond in name and order with those of Tahiti (26) and Rarotonga. In New Zealand all three names occur with variations, but the order has been transposed, particularly with Whiro as the first and Tirea as the second night. It is significant that in the list of thirty tables presented by Williams (33) only two maintain the order with Tireo first, and that these two, which came from Tananaki and Wanganui, are the nearest to the Tongarevan list. From this distinction it can be inferred that Tongareva has kept the three names in their original order.

The 4th, 5th and 6th nights form the first group of three Samia. The three Tahitian lists by Stimson (26) give the same group as three Hamiama. His 3rd list keeps the same qualifying terms of *tahi*, *roto*, and *fa'aoti*, and the other two lists use *mua*, *roto*, and *muri*. For Rarotonga Williams (33, p. 356) gives Amiama for the 4th night and Akaoti for the 5th, which should be Amiama-akaoti, making a group of two. In the Marquesan list by Handy (9, p. 348) the 4th, 5th, and 6th nights are *Maheama tuatahi*, *Maheama vaveka* and *Maheama haka-pao*, thus preserving the Tongarevan and Tahitian group of three. According to Williams (33, p. 355) Mangareva has the first four nights as a Maema group of four, and neither New Zealand nor Hawaii shows any trace of a word resembling Hamiama, though Hawaii has a group of four qualifying terms for the 3rd to the 6th nights. The group name itself is omitted. On the whole, it appears that the Hamiama group was a later addition and has been abbreviated in Tongareva to Samia (Hamia) by dropping the final syllable *ma*.

The 7th, 8th, and 9th nights form the second group of three Tamatea. Here some confusion exists. Stimson's third Tahitian list, which follows the Tongarevan qualifying terms in the Hamiama group, gives two Ore'ore (Korekore) and one Tamatea for the same nights in that order. This is followed by another of the lists. Stimson's second list gives a group of three Tamatea, without any 'ore'ore. Marquesas follows up the Maheama group of three with three Koekoe (Korekore), which accounts for the 7th, 8th, and 9th nights and drops the Tamatea entirely. Hawaii has an Ole group of four starting from the 7th, and Mangareva has a Korekore group of four starting from the 5th. Neither Hawaii nor Mangareva has any Tamatea nights.

Rarotonga compromises by following up these two Amiama with two Tamatea and two Korekore, reversing the order that is maintained in Tahiti. The Maori lists show much confusion, but several of them start the series of the 4th to the 9th with a form of Uenuku, followed by Okoro and four Tamatea. One list gives Korekore-mua (6th), Korekore-muri (7th), and Tamatea (8th), with the Korekore nights thus coming definitely before the Tamatea. The wide distribution of the Korekore names indicates that it had a definite place in the first half of the month as well as in the second half. With Rarotonga as an exception, the Korekore evidently came before the Tamatea, which seems to have been increased in number in some areas with the effect of decreasing the number of Korekore. Thus, in New Zealand the Okoro night immediately precedes the Tamateas, and from its position, it probably represents the Korekore group, having reached its present form of Okoro through Okore. The position of the Tamatea group toward the end of the first quarter is emphasized in the Maori tradition of the Tainui canoe. Hoturoa, the chief of Tainui, proposed to set out from Hawaiki to the land in the south on the Orongonui (28th). He was advised by his elders, however, to wait until the following Tamateas were over, as the end of the first quarter was regarded as rough weather. Hoturoa's reply was, "I will meet the Tamateas on the open sea and we will fight it out there." Tongareva, by this adoption of three Samia and three Tamateas, has eliminated the Korekore terminology.

From the 10th to the 15th a widespread series of names is used. Huna (10th) appears as the 10th in Tahiti, New Zealand, Chatham Island, Mangareva, and as the 11th in Hawaii, Marquesas, and some New Zealand lists.

The 11th, under the form of Hoari, is evidently Ari with a prefix *ho*. Ari appears in every Maori list, occurring 15 times on the 11th, 12 times on the 10th, and 3 times on the 9th. It appears as Oari on the 9th in Mangareva, as Ai (*ari*) on the 10th in the Marquesas, and as Vari in Rarotonga and Mangaia. In Tahiti it appears as Ari on the 11th, but with an alternate name of Rapu for the same night.

Hua (12th) is a day later and follows Maharu in Tahiti, New Zealand, Hawaii, Marquesas, and Rarotonga. In the Moriori (33, p. 355) and a few of the Maori lists Hua appears on the 12th and precedes Mawharu. Maharu (13th), as noted above, precedes Hua in most localities.

Atua (14th) is interesting, for in Tahiti and Rarotonga the 14th night is Maitu. The name, however, occurs on the 14th in Hawaii (Akua), Marquesas (Atua), Chatham Islands (Outua), also most New Zealand (Atua) lists, whereas it appears on the 13th in Mangareva (Oetua) and on the 15th in some Maori lists. Manihiki has an Atua mua on the 13th and an Atua-muri on the 14th. Distribution shows that Atua is the old name,

whereas Maitu is a local name in Tahiti and Rarotonga. Hotu (15th) is well established as the 15th in Tahiti, Rarotonga, Hawaii, Marquesas, New Zealand, and Chatham Islands and appears as Ohotu on the 14th in Mangareva. Marangi (16th) appears as the 16th in Tahiti (marai), Manihiki, Rarotonga, and Hawaii (Malani). In New Zealand, Chatham Islands (maure), and Mangareva (Omaure, 15th), its place is taken by Maure, with variants. Turu (17th) appears as the 17th in Tahiti (Turutea), Rarotonga, Marquesas (Tu'u), Chatham Islands (Oтуру), most New Zealand lists, and Hawaii (Kulu).

The 18th, 19th, and 20th form the group of three Rakau which corresponds exactly with Tahiti, Rarotonga, Manihiki, and Hawaii. The 21st, 22nd, and 23rd form the group of three Korekore of the second half and the 24th, 25th, and 26th form the group of three Tangaroa, again corresponding exactly with Tahiti, Rarotonga, Manihiki, and Hawaii. New Zealand, Chatham Islands, Marquesas, and Mangareva disagree slightly as to the numbers in the group, but they follow the order of Rakau, Korekore, and Tangaroa, though Mangareva uses Vehi instead of Tangaroa. The different areas usually finish up the group on the 26th, which leaves a fairly constant group of four nights. Tane (27th) appears as the 27th in Tahiti (Tane), Hawaii (Kane), Mangareva (Otane), and in 66 per cent of the New Zealand lists (Otane). In the remaining New Zealand lists the Otane is displaced to the 26th or 28th but always preserves its position as the first night after the last of the Tangaroa series. In Chatham Islands (Otane) it is also displaced to the 28th, but follows the last Tangaroa. In Marquesas (Tane) it occurs on the 28th but follows Vehi, which in Mangareva corresponds to the Tangaroa group. In Rarotonga and Manihiki Tane night occurs on the 28th, being so displaced by the transposition of the Rongonui night between the Tane and the last Tangaroa.

Mauri (28th) and Rongonui (29th). The Rongonui night follows the Tane in Tahiti (Ro'onui), Hawaii (Lono), Marquesas ('Ononui), Chatham Islands (Orongonui), and in all the New Zealand lists. The exceptions, as mentioned above, are Rarotonga and Manihiki, where it precedes the Tane, and Mangareva, which omits the Rongonui altogether. The Mauri night follows the Rongonui in Tahiti (Ro'o-mauri), Hawaii (Mauli), Chatham Islands (Orongomori), and New Zealand (Mauri and Mouri). In Rarotonga and Manihiki, as the result of the transposition, the Mauri follows Tane but occupies the same third position in the last group of four. From distribution, therefore, the Mauri and Rongonui have become transposed in the Tongareva list. Mutu (30th) is the last night in Tahiti, Rarotonga, Manihiki, Hawaii, Chatham Islands, and New Zealand; and the Marquesas and Mangareva, which show the most confusion of the lists examined, omit

it. From distribution it is evident that the original names and order of the last group of four comprising the 27th to the 30th nights were Tane, Rongonui, Mauri, and Mutu.

The Tongarevan list of nights of the moon, therefore, standardizes the groupings into threes, especially in the first half, by omitting the Korekore nights and, except for the transposition of Hua and Maharua in the first half and Mauri and Rongonui in the second half, retaining what appear to be the original names in the old order.

THE END

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PLATE LEGENDS

PLATE 1.—PREPARING RORO AND HUSKING COCONUTS.

A, Nahuinga, the wife of Pa, preparing *roro*. Grated coconut in the *kainga* wringer and strainer of coconut husk opened out on her hands, ready for folding over and wringing out the fluid; broken wooden bowl (*kumete*) on left contains grated coconut; round drinking bowl (*kumete tatau*) on right with broken rim contains expressed *roro* coconut cream. *B*, Nahuinga using the wringer with short quick movements to express the *roro* fluid into the round drinking bowl below, white creamy fluid oozing out between her fingers. *C*, Pa seated in position for coconut husking with the soles of his feet turned in to support in the erect position the butt of the husker, which he holds in his hand. *D*, Pa brings the horizontally held nut down sharply on the point with both hands to penetrate a segment of husk on the near side.

PLATE 2.—DOUBLE WALL SCREEN AND OVEN COVER.

A, Double wall screen (*pataro mangarua*), made of two unsplit sections of coconut leaf (C3270): leaflets from one side have been bent over leaf midrib and interlaced in opposite direction to natural lie of leaflets of opposite side; leaflets are closed and half-turns defining end edges may be observed; plaiting stroke is twilled-two in horizontal rows which are now vertical from position of completed article; braided free tails at each end of middle line have been doubled behind plaiting, but parts may be observed where they have been pushed through from under surface and after a short course pushed through again to conceal knotted ends on under surface; width from midrib to midrib, 30 inches; depth at ribs, 26 inches; depth in middle, 20 inches. *B*, *C*, Plaited oven cover of coconut leaf (*toto umu*) made from long single leaflet-bearing strip doubled over on right to form two crossing sets of wefts (C3272) in twilled-two plaiting stroke with closed leaflets arranged in horizontal and vertical rows, full length at bottom and left but decreasing in length toward right with plaiting. *B*, upper surface, midrib strip bearing naturally directed dextrals, but owing to doubling over on right, upper layer is sinistral through change in direction: leaflets at lower edge were twisted under left front leaflet; braid finish at upper edge commenced on left and braid tail on right has been bent around to back, pushed through again for a short distance, and then pushed back to leave knot on other side. *C*, under surface: lower edge shows midrib strip; upper edge shows long course of wefts which join outer plies of braid; free tail doubled back on left, pushed through, and knot pulled back; dimensions, 22 by 15 inches.

PLATE 3.—SITTING MAT AND TUPONO BASKET.

A, B, Sitting mat (*tapakau*) made of two leaflet-bearing strips torn from opposite sides of leaf (C3271). *A*, upper surface: dextral strip has been placed above sinistral strip; stroke is a twilled-two in horizontal rows with closed leaflets; side margins formed by direct bend without turning surface, and upper finishing edge shows three-ply braid which commenced on right; knot of braid tail is shown on upper left corner where it has been pushed through from other side; lower edge shows twisting forward of leaflets under leaflets in front. *B*, under surface: lower edge shows two distinct midrib strips and also lower ends of extra leaflets which have been introduced to fill wide inter-weft spaces; upper edge shows long course of set of wefts which have been bent over to form outer plies as braid is plaited from other surface; free braid is shown in right upper corner where it is pushed through to lock knotted end on other side; lower edge, 29 inches; upper edge, 23 inches; depth in middle, 14.5 inches. *C*, Basket (*tupono*) of coconut leaf (C3274) with two-strip twisted rim, twilled-two plait in horizontal rows with closed leaflets, and two-course braided bottom with two free tails: commencement of free tails shows at each bottom corner, pushed through to inside; curved rim length, 38.5 inches; bottom length, 27.5 inches; side lengths, 13.5 inches; middle depth, 15.5 inches.

PLATE 4.—COCONUT LEAF BASKETS, EYE SHADE, AND PERINEAL BAND.

A, *Raurau* basket (C2854) with unsplit section of midrib forming bottom, check plait with open leaflets and three-ply braided rim; bottom length, 21.5 inches; rim length, 17 inches; middle depth, 10.25 inches. *B*, *Taunga* basket (C3273) with two-strip twisted rim, twilled-two plait with closed leaflets, and two-course braided bottom: braided tail of first course at bottom has been doubled in from right and second course pushed through on left to inside; after running up for about two-thirds of depth of basket on left side, knot was pushed through to outside; rim length, 11 inches; bottom length, 8.5 inches; middle depth, 11.5 inches. *C*, *Pare taumata* or *taumata* eye shade (C3275): two midrib strips with untwisted leaflets form forward peak rim; check plait with open leaflets; leaflet ends above plaited in two free braided tails and tied with reef knot to form head band; bottom width, 9.5 inches; top width, 7 inches; middle depth, 10.25 inches. *D*, Perineal band (*maro*): wide strip of fibrous textile (stipule) from base of coconut leaf midrib (*kaka*) knotted at one end to length of lauhala; free end of *kaka* held against abdomen and attached end passed back between thighs to cover genitals; lauhala strip brought around waist on right of wearer to cross the *kaka*, carried around on left, and tied at back; free end of *kaka* then dropped forward over lauhala strip as shown. The *maro* is no longer used.

PLATE 5.—MARAE PILLARS.

A, Left corner pillar of back line of Rauhara marae, curb stones, and small inclosure containing white coral gravel around pillar; *B*, side line pillars of marae, growth of *ngoso* shrub; *C*, well-cut pillar with paired lateral flanges from side line of Rakahanga marae, curb stones on either side of pillar.

PLATE 6.—FEATURES OF MARAES.

A, Pillars of marae on Vaiari; *B*, left side line of Te Reinga marae, cleared on inner side to show curbing and coral gravel; *C*, recess with lower row of upright slabs and horizontal layers, Te Papa-o-Sokoau marae; *D*, grave of limestone slabs near Rakahanga marae, low head pillar.

PLATE 7.—MARAE PLATFORMS.

A, Well-preserved stone platform of Te Reinga marae, upright slabs, paving, and three pillars on back line; *B*, raised platform of irregular shape with recesses, Te Papa-o-Sokoau marae.

PLATE 8.—BONITO HOOKS AND DRINKING BOWLS.

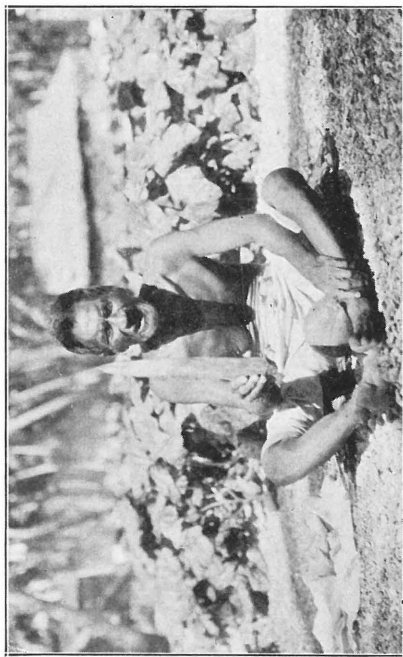
A, Bonito hooks with pearl shell shanks and points, and hackles of pigs' bristles: *a*, back view, lashing of hackle; *b*, side view, thick head, lashings, and snood; *c*, front view. *B*, Drinking bowls (*kumete tatau*) for *roro*, rounded bottoms and two projecting lugs, one perforated for suspensory cord and both to give finger support in drinking. *a*, side view (C2832): diameter at rim on interlug axis, 8.4 inches; cross diameter, 8 inches; axis between lugs does not correspond with longest axis, which is 8.6 inches; suspensory lug is 1.3 inches long, 0.5 inches thick, and projects out from bowl surface for 0.45 inches, and hole 0.2 inches in diameter is bored through middle of base; unperforated lug is 1 inch long, 0.3 inches thick and projects 0.2 inches; rim is bevelled gradually from both sides to blunt edge, outside diameters being about 0.2 inches greater below rim than at rim; thickness of bowl gradually increases from 0.5 inches at level of 0.75 inches below rim to 1 inch at bottom. *b*, bottom view from outside (C2831): rim diameter of interlug axis, 8.2 inches; cross rim diameter, 7.35 inches; suspensory lug is 1.3 inches long, 0.5 inches thick, and projects 0.45 inches; unperforated lug is 1.2 inches long, 0.4 inches thick, and projects 0.25 inches.



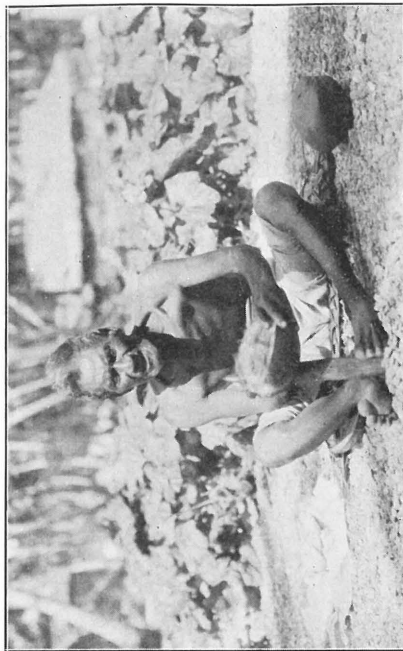
A



B

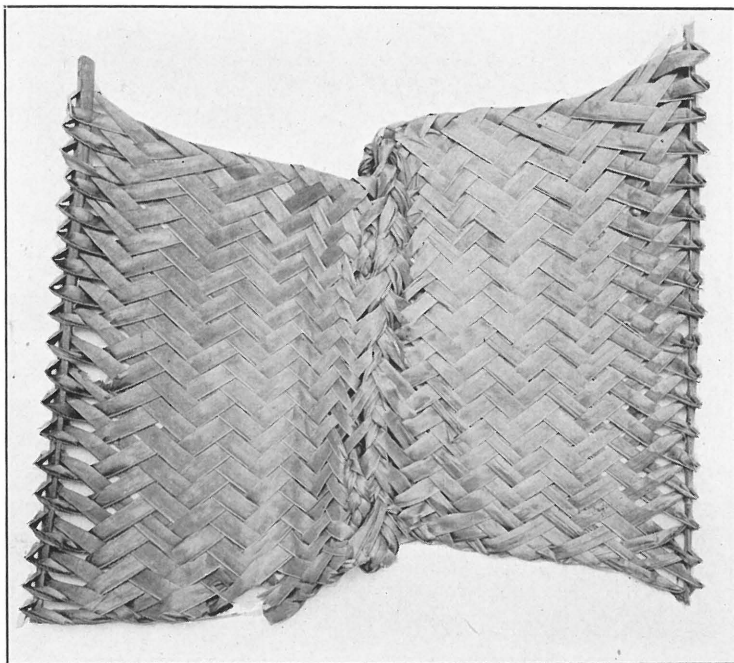


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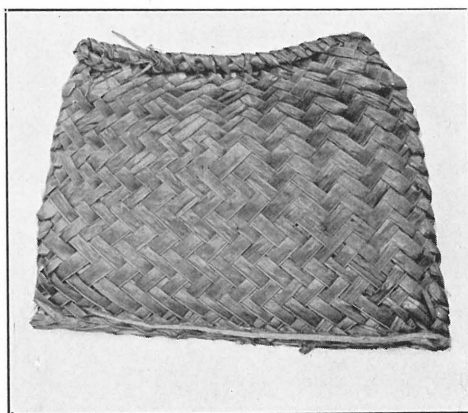
PREPARING RORO AND HUSKING COCONUTS.



A

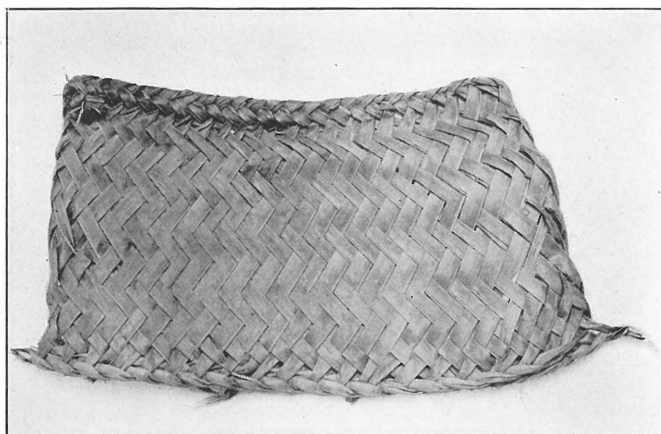


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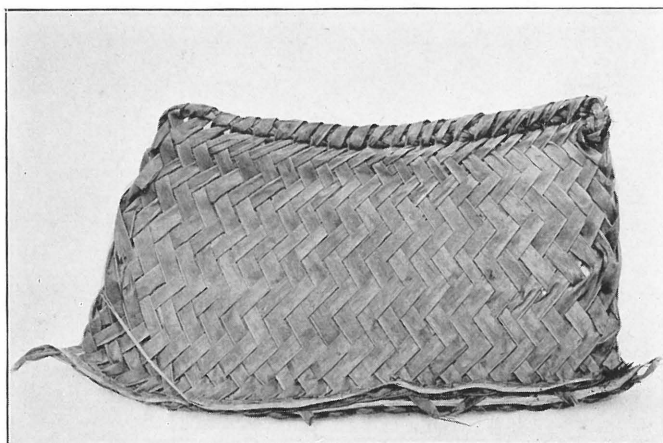


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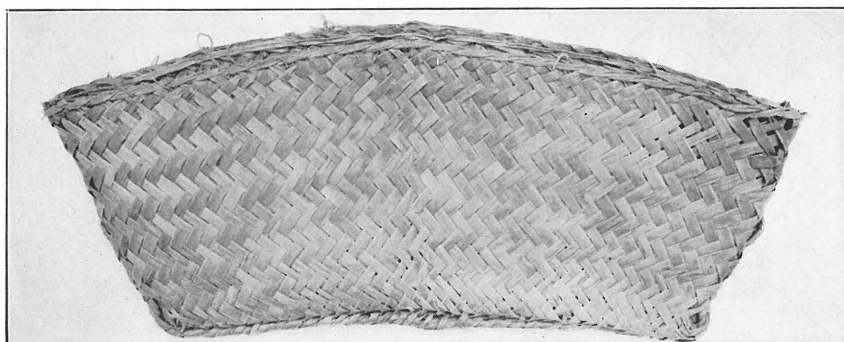
DOUBLE WALL SCREEN AND OVEN COVER.



A

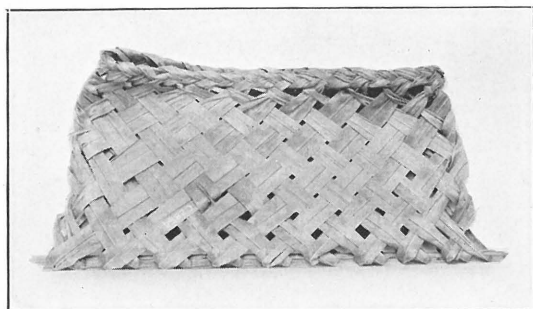


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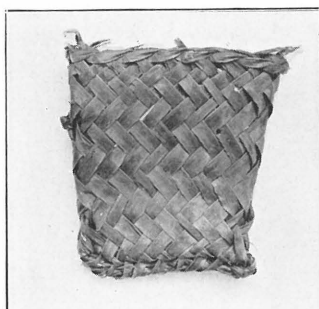


C

SITTING MAT AND TUPONO BASKET.



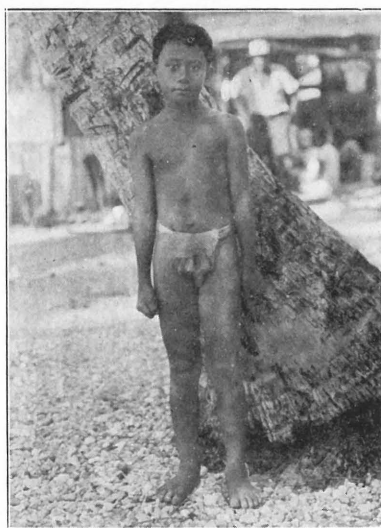
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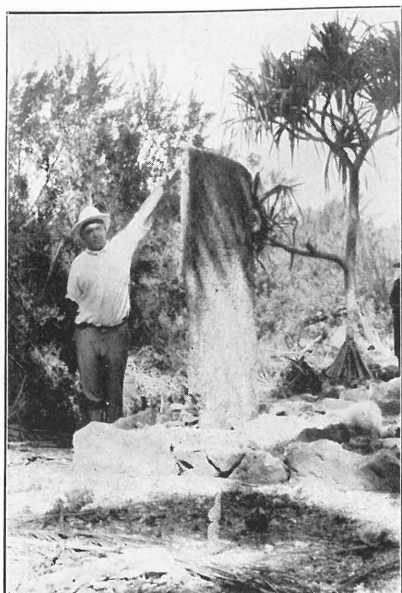


C



D

COCONUT LEAF BASKETS, EYE SHADE, AND PERINEAL BAND.



A



B



C

MARAE PILLARS.



A



C



B



D

FEATURES OF MARAES.

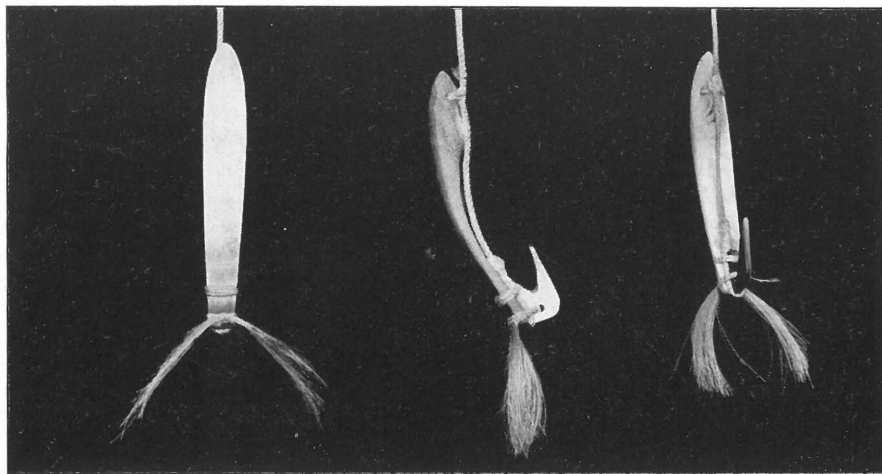


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MARAE PLATFORMS.

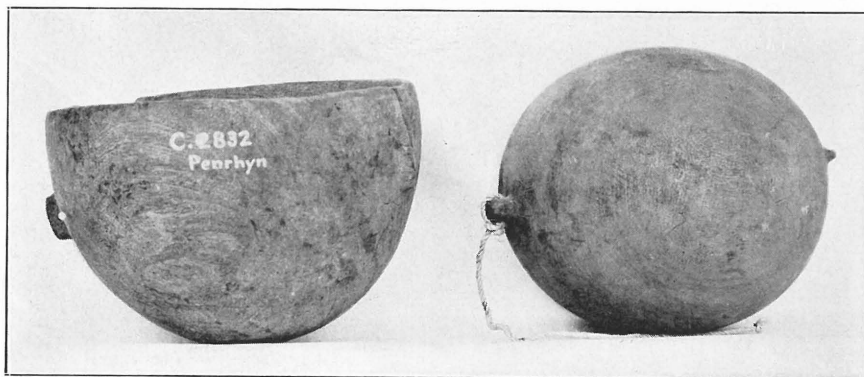


a

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B

BONITO HOOKS AND DRINKING BOWLS.

